

Service
Service
Service



Service Manual

DOLBY SURROUND
PRO LOGIC

TABLE OF CONTENTS

	Page
Location Boards / System info.....	1-2
Technical Specification	1-3
Service Tool / Measurement setup / Safety	1-4
Warning / Handling Chip components	1-5
Abbreviations	1-6
Instruction for Use	2-1
Wiring diagram	2-18
Block diagram	3
Service Test program	4
Dismantling hints / Service positions	5
Front Board	6
Tuner 95 diagram	7A
Dolby Pro Logic Board	8
Mains Board	9
Mono2 Board	10
Exploded view	11
Partslist Exploded view	12
Electrical partslist Mono Board	13

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

Copyright 1995 Philips Consumer Electronics B.V. Eindhoven, The Netherlands
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise without the prior permission of Philips.

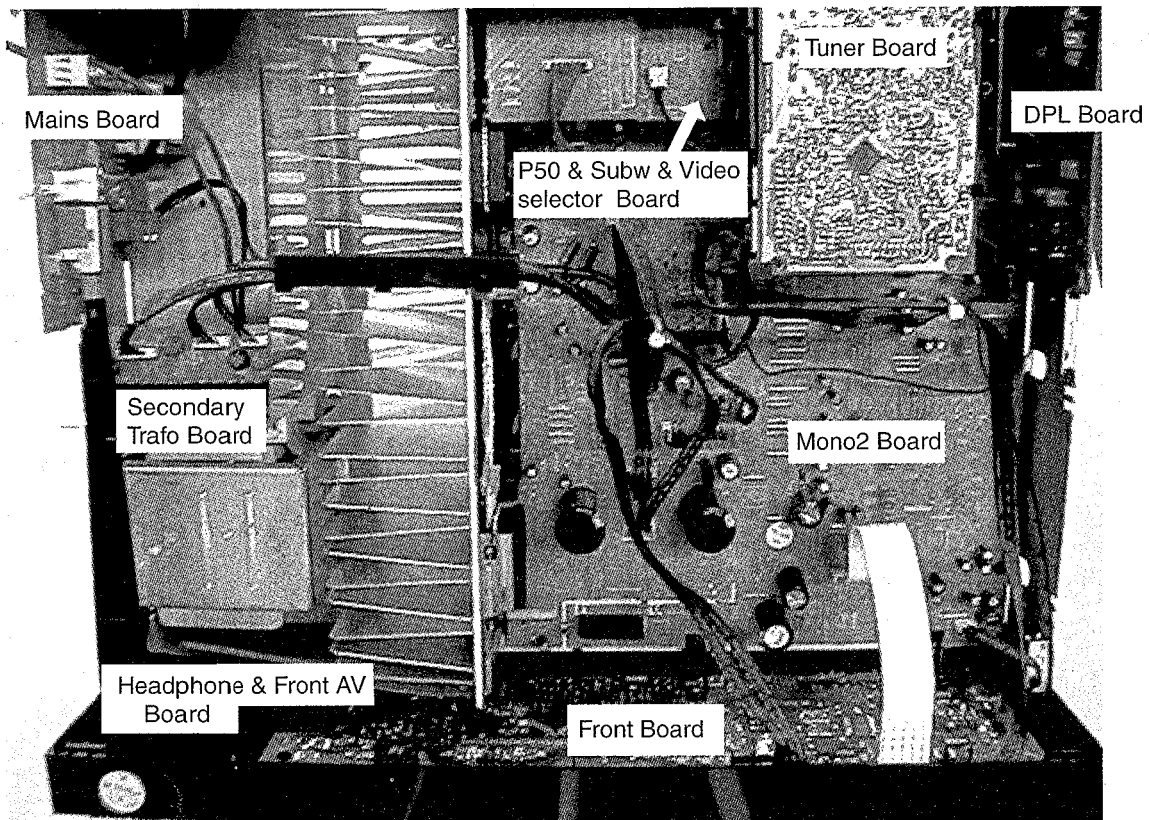
Published by MD 0012 Service Audio Printed in the Netherlands Subject to modification

3104 215 50050

PCS 102 456



PHILIPS

LOCATION OF PRINTED CIRCUIT BOARDS

SPECIFICATION FR760

General

Mains voltage	: 230V
Mains frequency	: 50Hz
Power consumption	: ≤ 2W at stby
Dimension	: 138x435x350 mm
Remote control	: RC2526

Amplifier

Output power	
Stereo mode (L+R)	: 2x100W DIN (1kHz, 0,7%THD, 6Ω)
Surround mode	
L+R	: 2x100W (1kHz, 0,7%THD, 6Ω)
Center	: 100W (1kHz, 0,7%THD, 6Ω)
Surround Left+Right	: 2x100W (1kHz, 0,7%THD, 6Ω)

Distortion (5W)	
1kHz	: ≤ 0,05%
40Hz - 20kHz	: ≤ 0,2%

Headphone	: 6,3mm stereo jack with switch
Output level	: 3V EMF, 60Ω

Crosstalk between source (1W)	—1kHz : ≤ -65dB 250Hz – 10kHz : ≤ -60dB
-------------------------------	--

Crosstalk between channels (1W)	-1kHz : ≤ -55dB 250Hz – 10kHz : ≤ -50dB
---------------------------------	--

Frequency response	: ≤ 10Hz – ≥ 30kHz (-1dB)
--------------------	---------------------------

Power stage protection	: Shortcircuit : DC (Vout ≥ 10V) for ±1sec
Temperature	: Transformer (≥ 140° Celcius) : Heatsink (≥ 140° Celcius)

Audio Selector

Input sensitivity	
CD	: 250mV impedance ≥ 47kΩ
CDR/TAPE	: 250mV impedance ≥ 47kΩ
VCR	: 250mV impedance ≥ 47kΩ
TV	: 250mV impedance ≥ 47kΩ
6CH / DVD	: 250mV impedance ≥ 47kΩ
FRONT AV	: 250mV impedance ≥ 22kΩ

Output level	
CDR/TAPE	: 250mV impedance ≤ 1kΩ
VCR	: 250mV impedance ≤ 1kΩ

Output level (variable)	
Subwoofer pre-out	: 800mV impedance ≤ 1kΩ
Center pre-out	: 800mV impedance ≤ 1kΩ

Video Selector - CVBS

Input sensitivity	
DVD/VCR/TV/Front AV	: 1 Vpp impedance 75Ω
Output level	
Monitor/VCR	: 1 Vpp impedance 75Ω
Frequency response	: ≤ 50kHz → ≥ 6MHz

Tone controle

Loudness	
(volume ≤ -20dB Ref: 1kHz=0dB)	: 100Hz +6 dB : 10kHz +2,5 dB

Tone control (Ref: 1kHz=0dB)	
Bass 100Hz	-9dB → +9dB
Treble 10kHz	-9dB → +9dB

Hall	: Lt , Rt into Left, Surround, Right
------	--------------------------------------

DSC settings		100Hz	1kHz	10kHz
Personal	dB	0	0	0
Movie	dB	+ 4	+2	+4
Speech	dB	- 4	+1	- 2
Music	dB	+ 4	- 1	+2
Multimedia	dB	+ 7	+3	+6

Dolby Pro Logic

Stereo bypass from	: Lt , Rt into Left, Right
Dolby Pro Logic decoding	: Lt , Rt into Left, Right, Center, : Surround
Dolby 3 Stereo decoding	: Lt , Rt into Left, Center, Right
Center phantom decoding	: Lt , Rt into Left, Right, Surround (Phantom = no center speaker)
Surround delay	: variable 15 - 30 msec
Center mode	: Large , small , phantom
Testtone	

Tuner - (Tuner95)

RDS	: Only in /00
-----	---------------

FM	
Tuning range	: 87.5 – 108MHz

Grid	: 50kHz
------	---------

IF frequency	: 10.7MHz ±25kHz
Aerial input	: 75 Ω coaxial
Sensitivity at 26dB S/N	: ≤ 2μv
Selectivity at 300kHz	: ≥ 55dB
Image rejection	: ≥ 100dB
Distortion at RF=1mV,dev.75kHz	: ≤ 0,8%
-3dB Limiting point	: ≤ 2μV
Crosstalk at RF=1mV,dev.40kHz	: ≥ 35dB

MW	
Tuning range	: 531 - 1602kHz
Grid	: 9kHz
IF frequency	: 450kHz ±1kHz
Aerial input	: Frame aerial
Sensitivity at 26dB S/N	: ≤ 1,5mV/m
Selectivity at 9kHz	: ≥ 23dB
IF rejection	: ≥ 50dB
Image rejection	: ≥ 33dB
Distortion at RF=50mV,m=80%	: ≤ 3%

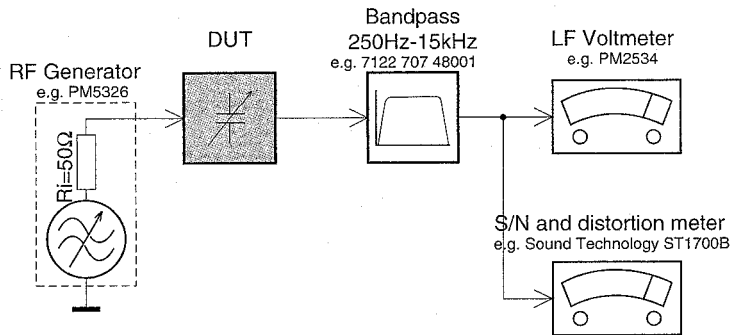
LW only in /00	
Tuning range	: 153 - 279kHz
Grid	: 3kHz
IF frequency	: 450kHz ±1kHz
Aerial input	: Frame aerial
Sensitivity at 26dB S/N	: ≤ 2,8mV/m
Selectivity at 9kHz	: ≥ 26dB
IF rejection	: ≥ 100dB
Image rejection	: ≥ 45dB
Distortion at RF=50mV,m=80%	: ≤ 3%dB

SERVICE TOOL

Dolby Prologic Test Disc.....4822 395 10216

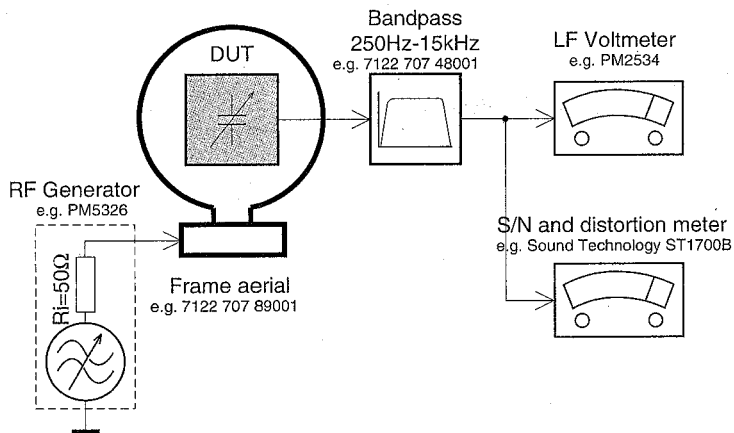
MEASUREMENT SETUP

Tuner FM



Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilotone (19kHz, 38kHz).

Tuner AM (MW,LW)



To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday's cage.
Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

SAFETY

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.
Safety components are marked by the symbol ▲

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.
Les composants de sécurité sont marqués ▲

SAFETY



(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Originalersatzteile zu verwenden.
Sicherheitsbauteile sind durch das Symbol ▲ markiert.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.
De Veiligheidsonderdelen zijn aangeduid met het symbool ▲

(I)

Le norme di sicurezza estigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.
Componenti di sicurezza sono marcati con ▲

WARNING

(GB) WARNING

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wristband with resistance. Keep components and tools at this potential.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.

Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfilez le braceleterti d'une résistance de sécurité.

Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

ESD



(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).

Unvorsichtige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.

Sorgen Sie dafür, daß sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.

Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).

Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.

Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).

La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.

Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(GB) AVAILABLE ESD PROTECTION EQUIPMENT :

anti-static table mat large 1200x650x1.25mm
small 600x650x1.25mm

anti-static wristband

connection box (3 press stud connections, 1M)

extendible cable (2m, 2M, to connect wristband to connection box)

connecting cable (3m, 2M, to connect table mat to connection box)

earth cable (1M, to connect any product to mat or to connection box)

KIT ESD3 (combining all 6 prior products - small table mat)

wristband tester

4822 466 10953

4822 466 10958

4822 395 10223

4822 320 11307

4822 320 11305

4822 320 11306

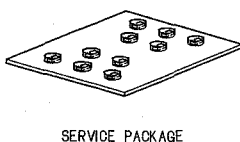
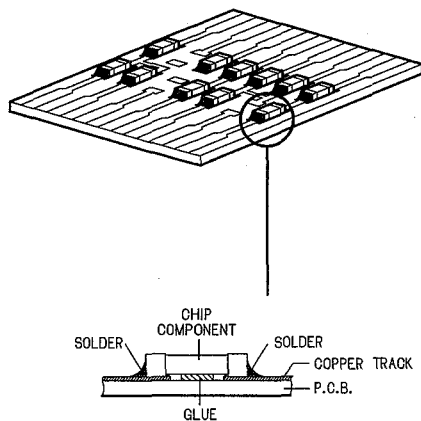
4822 320 11308

4822 310 10671

4822 344 13999

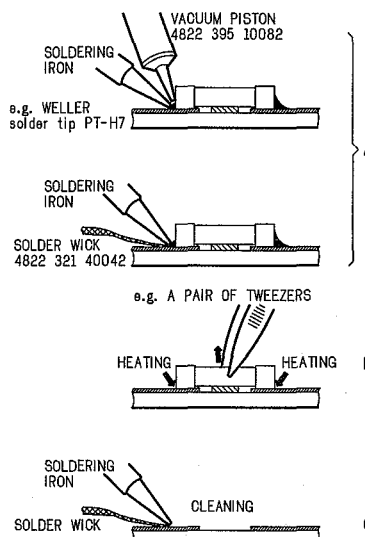
HANDLING CHIP COMPONENTS

GENERAL

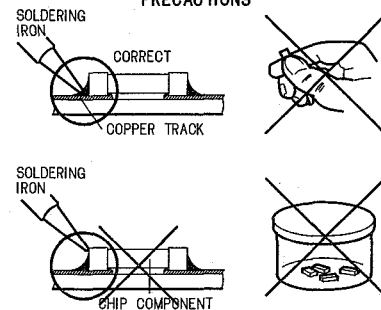


SERVICE PACKAGE

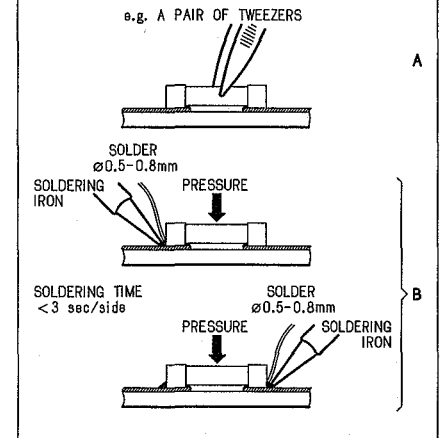
DISMOUNTING



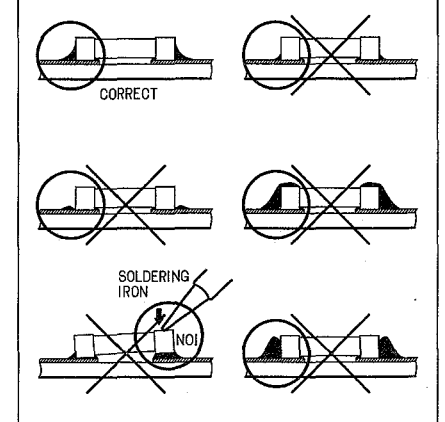
PRECAUTIONS



MOUNTING



EXAMPLES



ABBREVIATIONS

A

ac 0VA	AC 0 Voltage
ac 10VB	AC 10 Voltage
ac 110VB	AC 110 Voltage
ac 120VB	AC 120 Voltage
ac gnd	AC ground
ac1	AC voltage 1
ac2	AC voltage 2
ac3	AC voltage 3
ac h1	AC high voltage 1
ac h2	AC high voltage 2
ac l1	AC low voltage 1
ac l2	AC low voltage 2
amp lr on	Amplifier Left - Right On
amp mute lr	Amplifier mute Left - Right
amp mute c s	Amplifier mute center surround
amp mute c s sub	Amplifier mute center surround subwoofer
amp pd	Amplifier power down
amp prot	Amplifier protection
amp s on	Amplifier surround On
amp stby	Amplifier Standby
av gnd	Audio ground
av l	Audio Left
av r	Audio Right

D

d gnd	Dolby ground
dd req	Dolby decoder request
dpl c out	Dolbyprologic Center out
dpl clk	Dolbyprologic clock
dpl gnd	Dolbyprologic ground
dpl l in	Dolbyprologic Left in
dpl l out	Dolbyprologic Left out
dpl r in	Dolbyprologic Right in
dpl r out	Dolbyprologic Right out
dpl s	Dolbyprologic surround
dpl sub	Dolbyprologic subwoofer

F

f1	Filament 1
f2	Filament 2
fmute	Fast mute

G

gnd d	Ground digital
gnd s	Ground signal

H

hp gnd	Headphone ground
hp l	Headphone Left
hp on	Headphone On
hp r	Headphone Right
hst	Heatsink temperature

L

ls c	Loudspeaker Center
ls gnd	Loudspeaker ground
ls l	Loudspeaker Left
ls r	Loudspeaker Right

M

mfd	Mains failure detection
-----	-------------------------

P

p gnd	P50 ground
p p50	Cinema link P50 code

S

ss ce	Source selector chipenable
ss clk	Source selector clock
ss data	Source selector data
sofac scl	Sofac I ² C clock
sofac1 sda1	Sofac 1 I ² C data1
sofac2 sda2	Sofac 2 I ² C data2
surr pre-out	Surround pre-out
s gnd	Surround ground

T

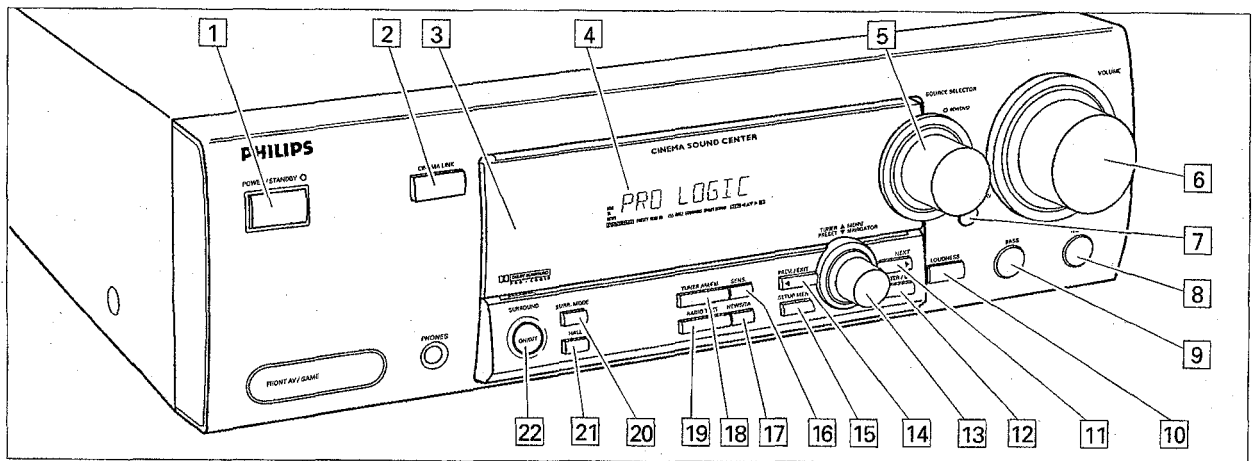
tu clk	Tuner clock
tu da	Tuner data
tu en	Tuner enable
tu gnd	Tuner ground
tu l	Tuner Left
tu r	Tuner Right
tu rds	Tuner RDS
tu stereo	Tuner stereo

V

v gnd	Video ground
-------	--------------

INSTRUCTIONS FOR USE

CONTROLS



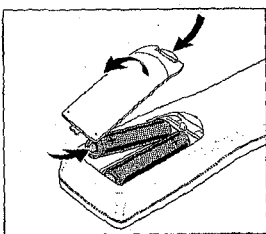
- 1 POWER / STANDBY** Switches the receiver on and off.
- 2 CINEMA LINK** Switches the system control bus between the receiver and the TV on and off.
- 3** Sensor for the infrared remote control.
- 4** Display
- 5 SOURCE SELECTOR** Selects the different audio and video connectors.
- 6 VOLUME** Increases and decreases the volume level.
- 7 FRONT AV** Selects the FRONT AV / GAME input (FR 760 only).
- 8 TREBLE** Adjusts the treble when used in combination with VOLUME.
- 9 BASS** Adjusts the bass when used in combination with VOLUME.
- 10 LOUDNESS** Switches LOUDNESS on and off.
- 11 NEXT ►** TUNER: searches radio stations.
MENU: switches to the next menu level.
- 12 ENTER / OK** Confirms selected menu values.
- 13 TUNER PRESET ◄ MENU NAVIGATOR**
TUNER: switches to the next and previous stored radio station.
MENU: moves upwards and downwards.
- 14 ◄ PREV. / EXIT** TUNER: searches radio stations.
MENU: switches to the previous menu level.
- 15 SETUP MENU** Switches the menu on and off.
- 16 SENS.** Switches between low and high tuner sensitivity.
- 17 NEWS/TA** Switches the RDS news and RDS traffic announcement on and off.
- 18 TUNER AM/FM** Switches the wavebands of the tuner.
- 19 RADIO TEXT** Scrolls through the different RDS information.
- 20 SURR. MODE** Switches through the different speaker configurations.
- 21 HALL** Switches HALL on and off.
- 22 SURROUND ON/OFF** Switches between the last selected surround mode and stereo.

INSTRUCTIONS FOR USE

REMOTE CONTROL

Remote control usage

Open the battery compartment of the remote control and insert 2 alkaline batteries, type **AA** (R06, UM-3).



Remove batteries if they are flat or if the remote control is not going to be used for a long time.

Batteries contain chemical substances, so they should be disposed of properly.

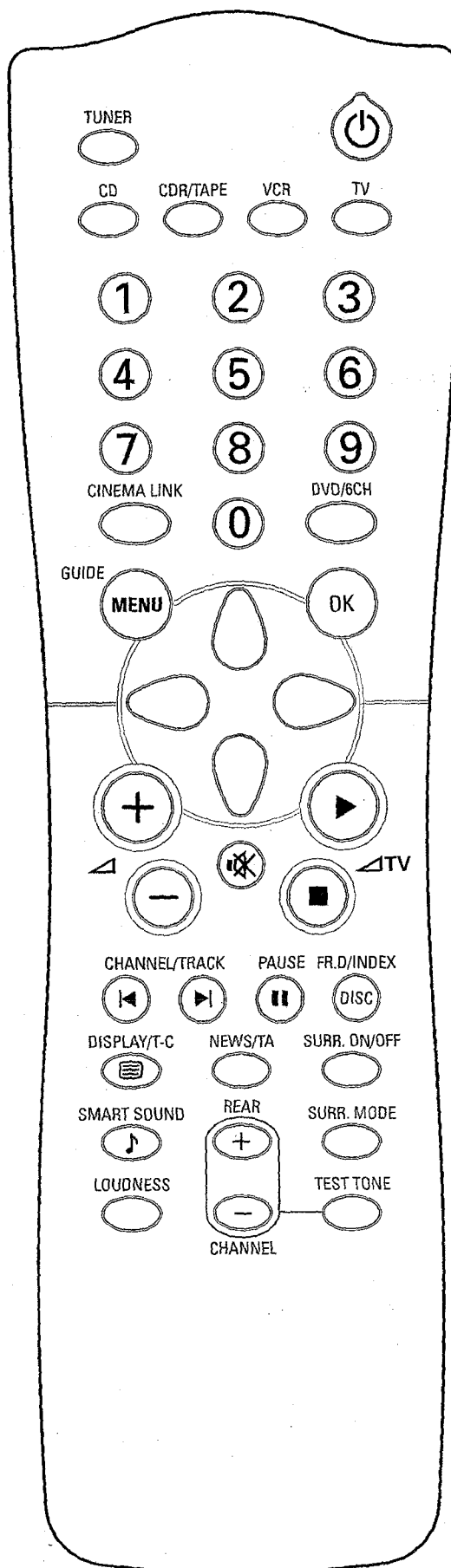
The buttons on the remote control work the same way as the corresponding ones on the receiver.

Additional appliances can only be controlled if they are working with the RC-5 and the RC-6 code system.

Important!

You have to press a source button for longer than 1 second to switch the sound source on the receiver. Pressing a source button for less than 1 second will only switch the remote control to use the commands for the selected product.

The remote control remains tuned to the selected source until another source button on the remote control is pressed. This enables you to operate additional sources (i. e. winding a tape) without changing the source on the receiver.



INSTRUCTIONS FOR USE

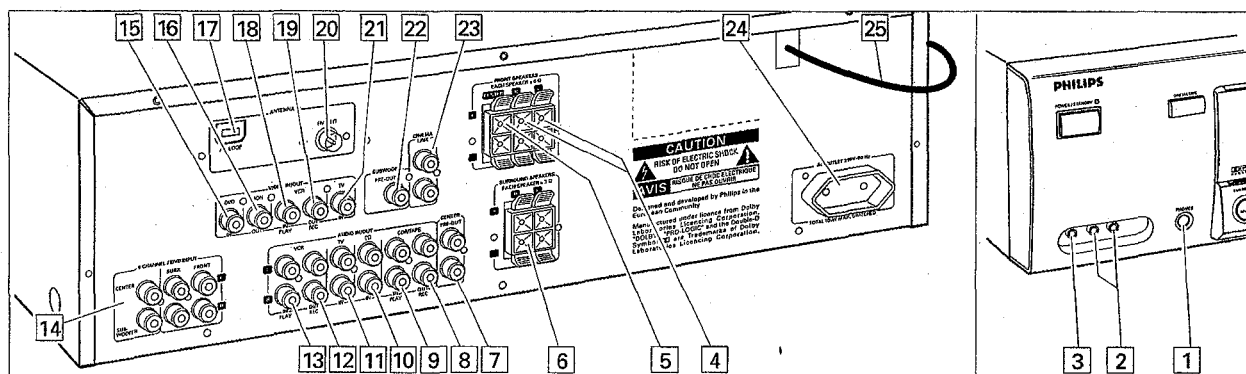
REMOTE CONTROL

Remote control buttons

-  Switches the receiver to standby.
 TUNER, CD, CDR/TAPE,
 TV, VCR, DVD/6CH Switches the remote control to the
 commands of the different products.
 Selects the sources if pressed longer
 than 1 second.
- 1-0 Keys in numbers for tracks, stations or
 frequencies. Numbers consisting of
 two figures must be keyed in within
 2 seconds.
- CINEMA LINK Switches the connection between the
 receiver and the TV on and off.
- MENU GUIDE** **TUNER**: Switches the receiver menu
 on and off.
DVD, TV: Switches the DVD/TV menu
 on and off.
- OK Confirms menu options.
- Arrow buttons **TUNER**: Moves in the menus.
 Right/left arrows are tuning up/down.
CD, CDR: Left/right arrows are
 searching backwards/forwards,
 up/down arrows are selecting the
 next/previous track.
- +  Increases the receiver volume.
-  Decreases the receiver volume.
-  Mutes the sound of the receiver.
-  **TV** Increases the TV volume.
CD, CDR, VCR, DVD: Starts playback.
-  **TV** Decreases the TV volume.
CD, CDR, VCR, DVD: Stops playback.
-  **CHANNEL/TRACK** Selects the previous preset tuner
 station.
VCR: Rewinds the tape.
CD, CDR, DVD: Selects the previous
 track.
TV: Selects the previous channel.
-  **CHANNEL/TRACK** Selects the next preset tuner station.
VCR: Fast forwards the tape.
CD, CDR, DVD: Selects the next
 track.
TV: Selects the next channel.
-  **PAUSE** **CD, CDR, VCR, DVD**: Pauses
 playback.
- DISC FR.D./INDEX** **CD-, CDR-, DVD-Changers**:
 Switches to the next disc.
TUNER: Switches to FREQUENCY
 DIRECT.
VCR: Switches the index search on
 and off.
-  **DISPLAY/T-C** **TUNER**: Switches between station
 name, frequency and radio text.
CD, CDR: Switches between the
 different time displays.
TV: Switches teletext on and off.
DVD: Switches between title and
 chapter.
- NEWS/TA** Switches the functions NEWS and
 TRAFFIC ANNOUNCEMENT on and off.
- SURR. ON/OFF** Switches SURROUND SOUND on and
 off.
-  **SMART SOUND** Scrolls through the different smart
 sounds.
- + / - **REAR** Increases/decreases the volume of the
 rear speakers. While test tone is on,
 the volume of the speakers you are
 hearing can be increased/decreased
 with these buttons.
- SURR. MODE** Scrolls through the different surround
 modes.
- LOUDNESS** Switches LOUDNESS on and off.
- TEST TONE** Switches the test tone on and off.
 While test tone is on, the volume of
 the speakers you are hearing can be
 increased/decreased with
 + / - **REAR**.

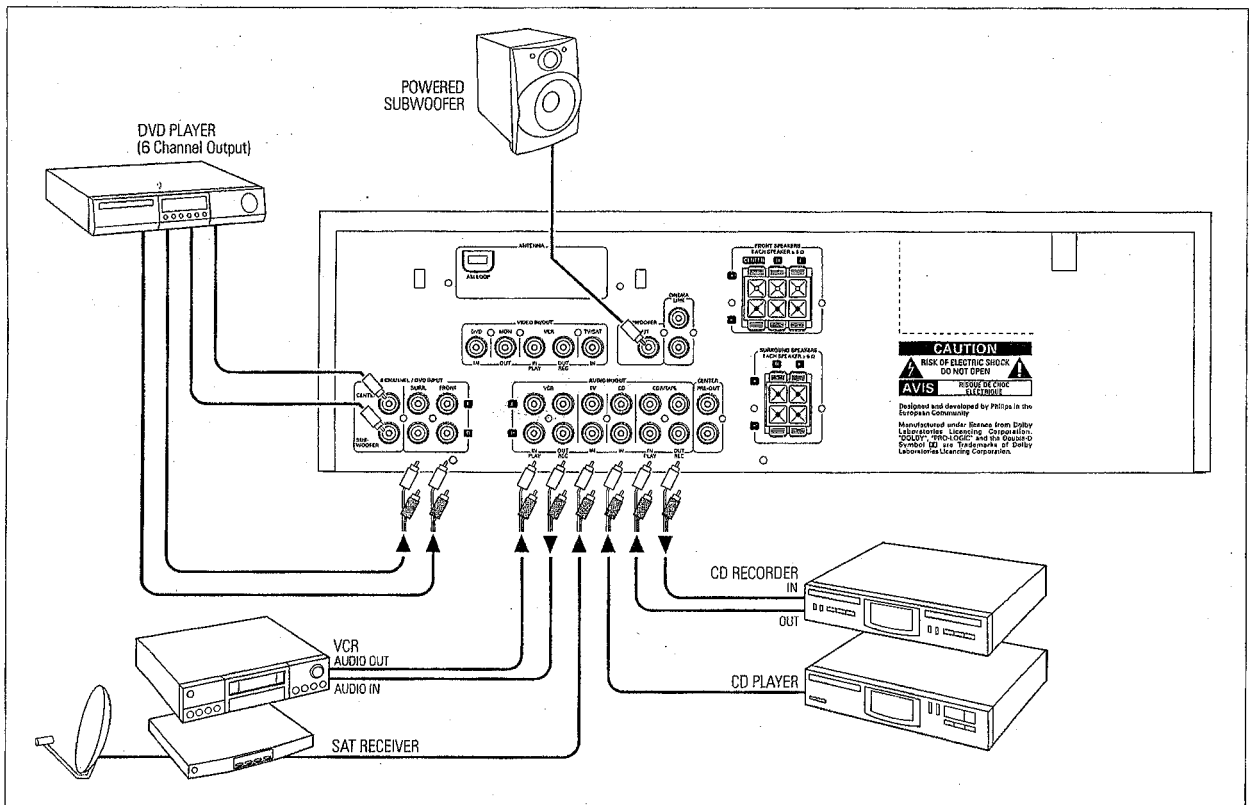
INSTRUCTIONS FOR USE

CONNECTORS



Connectors	Connectors name	Connect to:
6.3 mm headphone socket at the front	1 PHONES	A headphone with a 6.3 mm plug.
Audio and video inputs at the front (FR 760 only)	2 FRONT AV / GAME	Left and right audio out sockets of appliances such as video cameras and game consoles.
	3 FRONT AV / GAME	Video out sockets of appliances such as video cameras and game consoles.
FRONT SPEAKERS	4 R, L	Right and left front speaker.
	5 CENTER	Center speaker.
SURROUND SPEAKERS	6 R, L	Right and left surround speaker.
	7 CENTER PRE-OUT	Input of a TV when it is used as the center speaker (only possible when the CINEMA LINK system bus is connected).
AUDIO IN/OUT	8 CDR/TAPE OUT	Input of a CD recorder or a tape deck.
	9 CDR/TAPE IN	Output of a CD recorder or a tape deck.
	10 CD IN	Output of a CD player.
	11 TV IN	Output of a TV.
	12 VCR OUT	Input of a video recorder.
	13 VCR IN	Output of a video recorder.
6-channel input	14 6 CHANNEL / DVD INPUT	6-channel output of appliances such as DVD or Laserdisc players.
VIDEO IN/OUT (FR 760 only)	15 DVD IN	Output of a DVD player.
	16 MON OUT	Input of a monitor (e. g. the TV).
	18 VCR IN	Output of a video recorder.
	19 VCR OUT	Input of a video recorder (for recording).
	21 TV IN	Output of a TV.
Antenna connectors	17 AM LOOP	Frame antenna supplied.
	20 FM 75 Ω	Wire antenna supplied or exterior antenna.
Pre-amplified outputs	22 SUBWOOFER PRE-OUT	Input of a powered subwoofer.
	23 CINEMA LINK	System control bus sockets of a Philips TV with CINEMA LINK.
System control bus		
Mains outlet	24 AC OUTLET	Supplies same voltage as mains. Up to 100 W total permitted load.
Mains lead	25	After all other connections have been made , connect the mains lead to the wall socket.

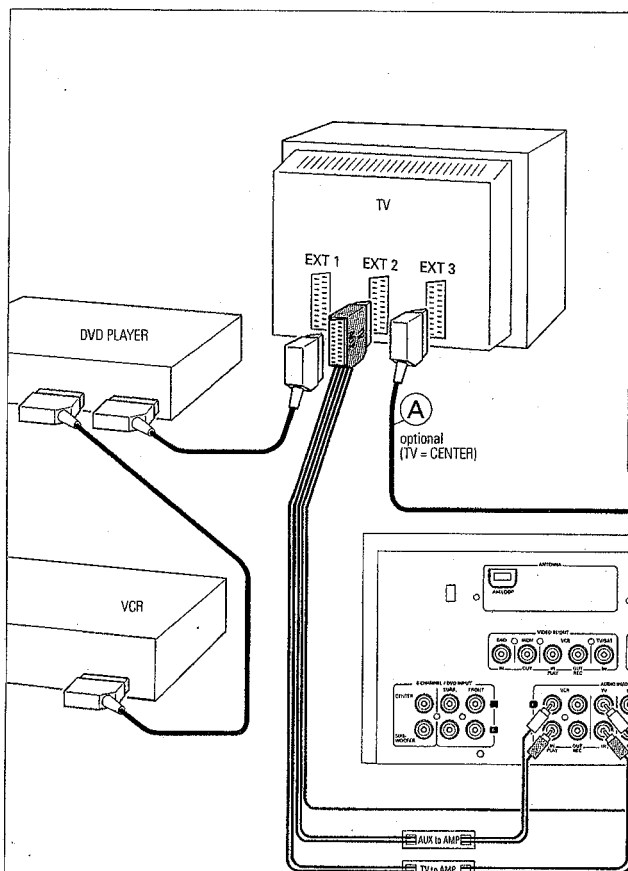
Audio connections



INSTRUCTIONS FOR USE

CONNECTIONS

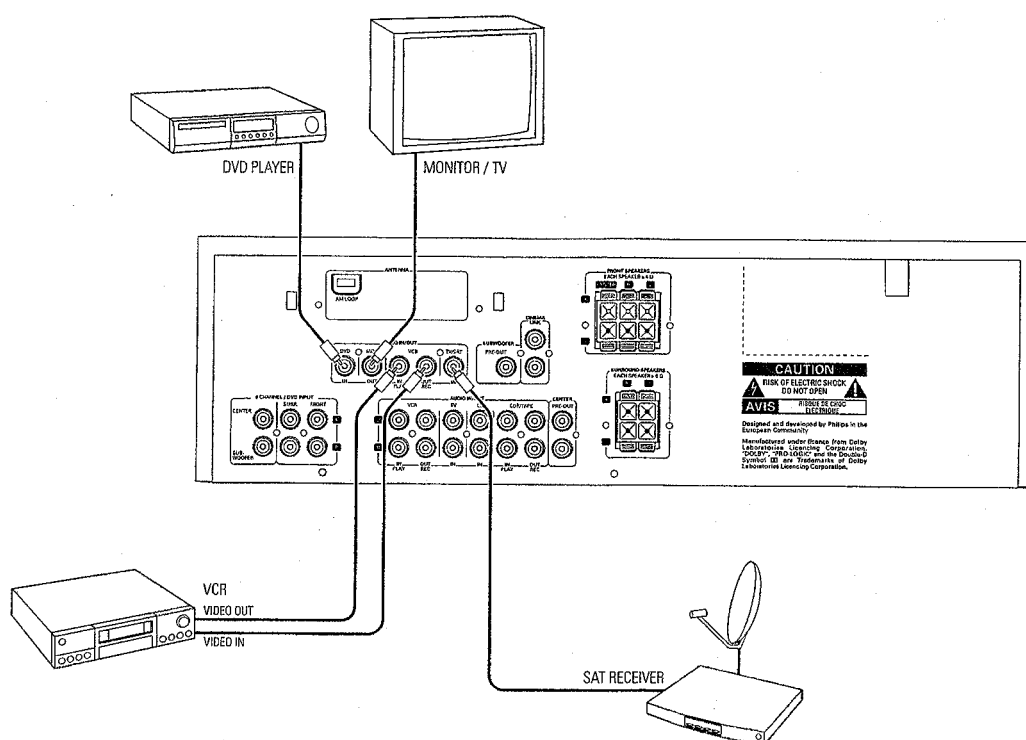
System control bus, CINEMA LINK



If the receiver and your Philips TV (or even better in addition a Philips VCR or DVD player) with Cinemalink are connected with the CINEMA LINK system bus control, some extra system benefits are offered:

- Upon starting a source, the system will automatically switch to that input.
- You may control the system via the TV screen. Depending on the language of the TV, this can be done in your preferred language.
- The TV can function as the center speaker of your system, making a separate center speaker unnecessary. (The cable ① has to be purchased separately.)
- By pressing the standby button on the remote control you can switch the complete system to standby.

Video connections (FR 760 only)



INSTRUCTIONS FOR USE

CONNECTIONS

Mains

The type plate is located on the rear of the receiver.

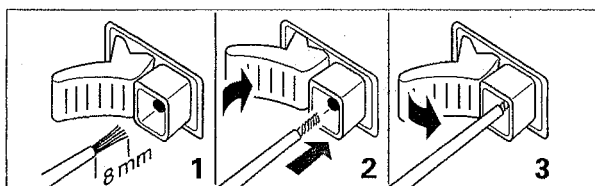
- 1 Check whether the mains voltage as shown on the type plate corresponds to your local mains voltage. If it does not, consult your dealer or service organization.
- 2 Connect the mains cable to the wall socket.

To disconnect the set from the mains completely, remove the mains plug from the wall socket.

For users in the U. K.: please follow the instructions on page 2.

Speaker connections

The speaker connections on the receiver are click-fit connectors. Use them as shown below.



- 1 Always connect the coloured (or marked) wire to the coloured terminal and the black (or unmarked) wire to the black terminal.
- 2 Connect:
 - Left front speaker to L (red and black)
 - Right front speaker to R (red and black)
 - Center speaker to CENTER (blue and black)
 - Left surround speaker to SURROUND L (grey and black)
 - Right surround speaker to SURROUND R (grey and black)

TV as the center speaker

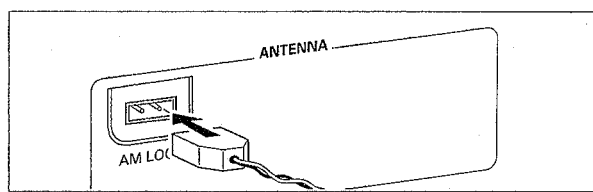
You may use your Philips TV with CINEMA LINK as the center speaker. For TVs with a scart connector an additional audio cinch-to-scart cable is needed. For TV's with cinch connectors additional cinch cables are needed. Look into the instruction manual of your TV on how to use it as the center speaker.

Antenna connections

AM (MW) antenna

The loop antenna supplied is for indoor use only. Position the antenna as far away as possible from the receiver, the TV, the cables, a DVD player, a VCR and other radiation sources.

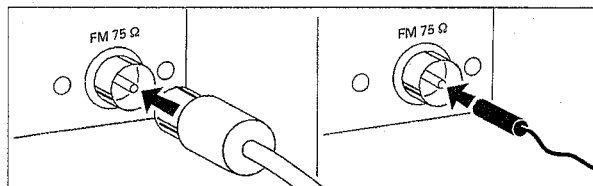
- 1 Fit the plug of the frame antenna to AM LOOP as shown below.
- 2 Position the antenna as far away as possible from radiation sources.
- 3 Turn the antenna for optimum reception.



FM antenna

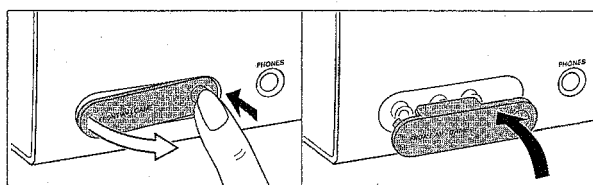
The wire antenna supplied can only be used to receive nearby stations. For better reception we recommend using a cable antenna system or an outdoor antenna.

- 1 Fit the supplied wire antenna to FM 75 Ω as shown below.
 - 2 Move the antenna in different positions for optimum reception.
- If you are using a cable antenna system or an outdoor antenna, fit the antenna plug to FM 75 Ω instead of the wire antenna.



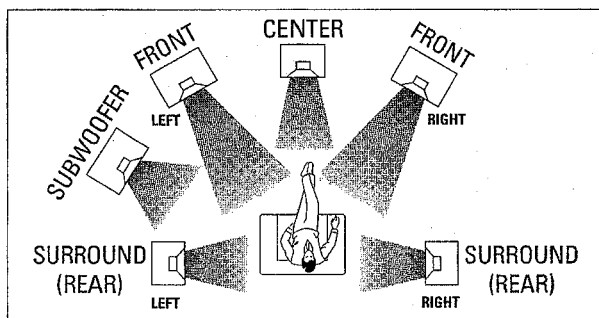
FRONT AV / GAME cap (FR 760 only)

- To remove the FRONT AV / GAME cap, press on the right side of the cap.
- Insert the cap from below to close the compartment.



INSTRUCTIONS FOR USE

SYSTEM SETUP



Speaker setup and testing

The relative volume of the speakers must be adjusted for optimal surround sound. You should be at your usual listening position when adjusting the speaker volume. See "Receiver menus" on how to set up the receiver for the used speakers. Ideally, the volume in the listening position should be the same from all speakers.

- 1 Press POWER / STANDBY to switch on the receiver.
- 2 Press TEST TONE on the remote control.
→ A test tone coming from the different speakers is heard.
- 3 Press + / - REAR on the remote control to increase/decrease the volume of the actual speaker.
- 4 Press TEST TONE on the remote control.
→ The test tone stops.

Note: If you are not completely satisfied with the volume settings, we recommend making minor adjustments to them during surround sound playback.

Power handling

If the receiver is used at very high power, it can produce distortions which may seriously damage your speakers. If distortions occur, reduce the volume and the tone controls to a level where the sound is acceptable again.

To avoid overheating of the set a safety circuit has been built in. Therefore your set may disconnect under extreme conditions. If this happens, switch the set off and let it cool down before reusing it.

Headphones

Connecting headphones to PHONES will switch off the speakers. The receiver switches to STEREO and surround sound will be reduced to a stereo signal which is reproducible by standard headphones.

Disconnecting the headphones switches on the speakers again. If you wish to enjoy surround sound again, switch the receiver back to surround sound.

Positioning of the speakers

General hints for positioning

Avoid positioning the speakers in a corner or on the floor as this will boost the bass tones too much. Placing the speakers behind curtains, furniture, etc. will reduce the treble response. The listener should always be able to "see" the speakers.

Each room has different acoustic characteristics and the positioning possibilities are often limited. You can find the best position for your speakers by referring to the picture above.

As a minimum we recommend 5 speakers (2 front, a center, 2 surround) for good surround sound. It is possible to reproduce some kind of surround sound with fewer speakers. This is done by redirecting the signals which are foreseen for the missing speakers to the existing ones. See "Menus" on how to set up the receiver correctly for the number and size of the speakers used.

Positioning the front speakers

The front speakers should be placed right and left in front of the listening position like usual stereo speakers.

Positioning the center speaker

The center speaker should be placed in the center between the two front speakers, e. g. underneath or on top of the TV. The best height for the center speaker is the height of the listener's ears (while seated).

Positioning the surround speakers

The surround speakers should face each other and be in line with, or slightly behind the listener.

Positioning the subwoofer

A subwoofer can be used to enhance the bass performance of your system dramatically. The subwoofer can be positioned anywhere in the room, because it is not possible to locate the source of deep tones. Nevertheless, you should not place the subwoofer in the middle of a room, since the bass could be severely weakened. Do not place any object on the subwoofer.

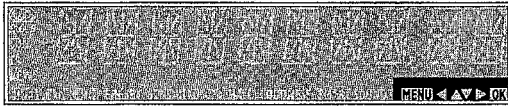
INSTRUCTIONS FOR USE

DISPLAY

Display

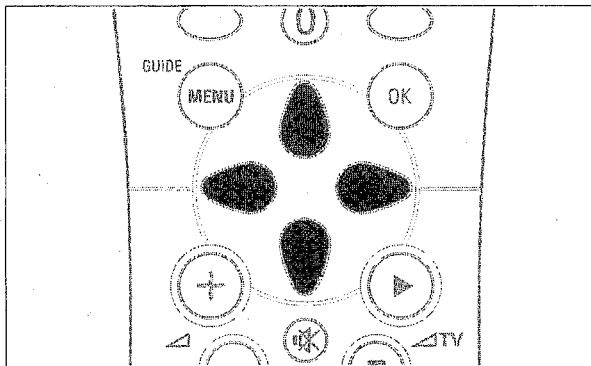
The display of the receiver is divided into 3 sections, which are to be used for the following:

Menu indication

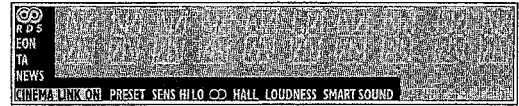


These signs show you if the menu is on or off and indicate in which direction you may move.

- MENU** Menu is on.
- ◀ You may move backwards to the previous menu topic using ◀ PREV. / EXIT ("left" key on the remote control).
- ▲ You may move up in an option list using ▲ MENU NAVIGATOR ("up" key on the remote control).
- ▼ You may move down in an option list using ▼ MENU NAVIGATOR ("down" key on the remote control).
- ▶ You may move forward to the next menu topic using NEXT ▶ ("right" key on the remote control).
- OK You may confirm the displayed value.



Status lights



Signs showing you various settings and information about the status of the receiver.

- PRESET** Tuner is tuned to a preset radio station.
- SENS HI** Tuner is switched to high sensitivity.
- SENS LO** Tuner is switched to low sensitivity.
- CINEMA LINK ON** CINEMA LINK is active.
- ∞ An FM station is being received in stereo.
- SMART SOUND** One of the preset sound settings of the receiver is being used.
- RDS An RDS station is being received.
- EON** An RDS station with EON is being received.
- HALL** HALL effect is on.
- TA** RDS traffic announcement is on.
- NEWS** RDS news announcement is on.
- LOUDNESS** LOUDNESS is switched on.

Information area



This area is used for feedback of the receiver, tuner frequencies, menu options, values and scrolling text messages.

INSTRUCTIONS FOR USE

MENUS

Receiver menu

The receiver is equipped with a menu system. The menu is used for the setup of the receiver. The different menu options are related to each other in a logical way. Let's assume you have no center speaker connected, and therefore switched CENTER LS to NO. If you try to use VOL CENTER, a message will be scrolled that this is not possible (INSTALL CENTER SPEAKER).

The menu always works the same way. Arrows in the display show you the possible moving directions.

1 Press SETUP MENU.

→ MENU, and * VOL BAL is displayed.

• You can exit the menu at any time by pressing SETUP MENU.

2 Turn $\blacktriangle$ MENU NAVIGATOR until the desired option (or a value) is displayed.

3 Press NEXT $\blacktriangleright$ to choose the displayed option (or ENTER / OK to confirm a value).

• You can leave any option (values remain unchanged) by pressing $\blacktriangleleft$ PREV. / EXIT.

Menu structure

* VOL BAL

Adjusts the relative volume balance between the connected speakers.

— TEST TONE

Test tone: on/off

— VOL FR-L

Volume front left speaker: -50...+50

— VOL FR-R

Volume front right speaker: -50...+50

— VOL CENTER

Volume center speaker: -50...+50

— VOL REAR-L

Volume rear left speaker: -50...+50

— VOL REAR-R

Volume rear right speaker: -50...+50

— VOL SUBW

Volume subwoofer: -50...+50

* LS SETUP

Selects the used speakers. Chooses the speaker sizes of the used speakers, for optimal sound reproduction.

The distance between the usual listening position and the speakers defines the delay time for the surround sound.

Note: When using the 6 CHANNEL / DVD IN input, these values cannot be changed.

— CENTER LS

Center speaker present: yes/no

— REAR LS

Rear speakers present: yes/no

— CENTR SIZE

Center speaker: small/large

— DIST L/R

Distance to front speakers: 1...10 m

— DIST REAR

Distance to rear speakers: 1...10 m

* TUNER

Setup for preset radio stations (see "TUNER" for details).

— AUTO INST

Stores radio stations automatically

— MAN INST

Stores radio stations manually

— GIVE NAME

Allows to assign names to stored radio stations

— RESHUFFLE

Resorts stored radio stations

INSTRUCTIONS FOR USE

MENUS

TV menu

If the receiver is connected to a Philips CINEMA LINK TV via the CINEMA LINK system control bus sockets (see "CONNECTIONS"), you may use the TV to set up the system. An option called RECEIVER will be added to the TV menu.

If CINEMA LINK is on, adjustments on the receiver will be shown on the TV screen for a few seconds. Consult the instruction booklet of your TV on how to use the TV menu. The options offered may vary by TV model.

Switching the connection

- Press CINEMA LINK to switch the connection between the receiver and the TV either on or off.
 - If the connection is switched on, **CINEMA LINK ON** is displayed.

Note: We recommend switching CINEMA LINK off during recording. This avoids unwanted interruptions due to switching TV functions.

If CINEMA LINK is switched on and the TV menu is active, TV MENU is displayed and the menu and sound functions on the receiver are locked.

INSTRUCTIONS FOR USE

SOURCE SELECTION

SOURCE SELECTOR

When selecting a source by turning SOURCE SELECTOR, the audio inputs – and video inputs (FR 760 only) – with the corresponding name are activated. The incoming signal is reproduced by all audio and – if the source includes a video signal – video outputs of the receiver.

Source selected Connectors used

6 CH / DVD	6 CHANNEL / DVD INPUT audio input and DVD IN video input (FR 760 only)
TUNER	The tuner part of the receiver is used, all inputs are switched off.
CD	CD IN audio input
CDR/TAPE	CDR/TAPE IN audio input
TV	TV IN audio input and TV IN video input (FR 760 only)
VCR	VCR IN audio input and VCR IN video input (FR 760 only)

About 6 CHANNEL / DVD INPUT

The 6 CHANNEL / DVD INPUT can be used to connect a device with a built-in multichannel decoder (e.g. Dolby Digital, DTS, etc.) and 6-channel output connector, i. e. a high end DVD player.

When using the 6 CHANNEL / DVD INPUT audio input, the receiver works as a multichannel amplifier. The source reproduces surround sound and sends it to the receiver divided into the necessary channels. Therefore the SURROUND ON/OFF, HALL and SURR. MODE button have no effect since the provided signal is already multichannel.

From a source which is connected to the 6 CHANNEL / DVD INPUT audio input cannot be recorded.

INSTRUCTIONS FOR USE

PLAYBACK, RECORDING

Playing a source

- 1 Press POWER / STANDBY to switch on the receiver.
- 2 Turn SOURCE SELECTOR to select a source.
 - The name of the source is displayed.
- You can select the FRONT AV/GAME input by pressing FRONT AV (FR 760 only).
- 3 Start playback of the source as usual.

Adjusting the sound

- Turn VOLUME to adjust the volume.
 - VOLUME and the volume level between 0 and 50 is displayed.
- 1 Press BASS or TREBLE.
 - BASS or TREBLE and the actual value are displayed briefly. Then TURN VOLUME KNOB TO CHANGE is scrolled.
- 2 Turn VOLUME to adjust the bass or treble.
 - BASS or TREBLE and the actual value are displayed.

Note: If VOLUME is not turned within 5 seconds or if any other control is used, the bass or treble adjustment is switched off.

- Press  SMART SOUND on the remote control to scroll through the built-in smart sounds: MOVIE, SPEECH, MUSIC, MULTIMEDIA and PERSONAL. (PERSONAL is the userdefined bass and treble setting.)
 - SMART SOUND is displayed and the name of the chosen sound profile is scrolled once if smart sound is on.
- Press LOUDNESS to switch loudness either on or off.
 - LOUDNESS is displayed if loudness is on.

Recording from a source

If you wish to record from a source you must select it with SOURCE SELECTOR. The incoming signal is reproduced by all audio and – if the source includes a video signal – video outputs of the receiver. The sound settings do not affect the recording.

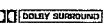
- 1 Turn SOURCE SELECTOR (or press FRONT AV – FR 760 only) to select the source you want to record from.
 - The name of the source is displayed.
- 2 Prepare the desired recording appliance. It must be connected to one of the outputs of the receiver.
- 3 Start recording on the recording appliance.
- 4 Start the playback of the source as usual.

*Notes: – The audio and video signal of VCR IN is not reproduced by VCR OUT. The same applies to the audio signal of CDR/TAPE IN to CDR/TAPE OUT.
 – From a source which is connected to the 6 CHANNEL / DVD IN audio input cannot be recorded.*

INSTRUCTIONS FOR USE

SURROUND SOUND

About surround sound

Surround sound gives you a complete new listening sensation. You will have the feeling of being in the middle of the action, because sound is coming from everywhere around you. Look out for TV broadcasts, audio and video tapes and discs with the  or  marks which are encoded for multichannel surround sound.

Notice that DVD discs do not always carry full multichannel surround. To be sure that a disc is multichannel encoded consult your dealer.

Most ordinary stereo tapes and discs can be replayed using surround sound settings with good results. If the reproduction is distorted in surround mode, switch to normal stereo mode.

The availability of the various surround sound modes described depends on the number of speakers used and the incoming sound information.

Switching surround sound

With surround sound on, you can switch through the different surround modes. Note that the possibilities are related to speaker setup defined in the receivers menu.

- 1 Press SURROUND ON/OFF to switch on the surround sound.
→ The surround mode in use is scrolled.
- 2 Press SURR. MODE repeatedly to listen to the different surround modes (if available).
→ The surround mode in use is scrolled.
- 3 Press HALL to switch hall either on or off.
→ **HALL** is displayed if hall is on.
- 4 Press SURROUND ON/OFF to switch off the surround sound.
→ **SURROUND OFF** is scrolled.

Note: Switching surround sound has no effect when using the 6 CHANNEL / DVD IN input.

Surround sound settings

HALL

The sound reproduction is enhanced and a slight echo is added. This gives the impression of being in a large room.

SURROUND (PRO LOGIC)

The surround mode enables normal surround sound reproduction with 4 or 5 speakers.

FRONT-3 STEREO (PRO LOGIC)

The surround sound is muted. 3 Stereo lets you listen to surround sound without using the surround speakers.

STEREO

All sound is reproduced and played through the front left and right speakers. This enables standard stereo reproduction.

INSTRUCTIONS FOR USE

TUNER

Tuning to radio stations

You can search for radio stations by scanning the frequency band. You can also key in the frequency of a known radio station. If an FM station is being broadcast and received in stereo, ∞ is shown.

Searching for radio stations

- 1 Turn SOURCE SELECTOR to select the tuner.
→TUNER is displayed.
 - 2 Select a waveband by pressing TUNER AM/FM repeatedly.
→The selected waveband is displayed.
 - 3 Keep ◀ or ▶ pressed for approximately 1 second.
→SEARCH is displayed and the tuner tunes to a station with sufficient strength.
 - 4 Repeat this procedure until you find the desired station.
- To fine tune to a weak transmitter, briefly press ◀ or ▶ as often as necessary for optimum reception.

Tuning to a radio station by frequency (with the remote control only)

- 1 Press TUNER.
→TUNER is displayed.
- 2 Press FR. D..
→_ is displayed.
- 3 Use 1-0 to key in the frequency of a radio station.

Note: Only valid numbers within the frequency range of the tuner can be keyed in.

Switching FM sensitivity

You can switch the tuner to a lower search sensitivity, to search for stations with a strong signal only (FM only).

- 1 Turn SOURCE SELECTOR to select the tuner.
→TUNER is displayed.
- 2 Press SENS. on the receiver.
→Either **SENS HI** or **SENS LO** is displayed for 5 seconds.

*Note: While searching for radio stations, the actual sensitivity is displayed. In this case, **SENS LO** means the tuner is only looking for radio stations with a strong signal.*

Storing radio stations

You may store up to 30 radio stations in the memory. The receiver can select and program radio stations by itself or you can choose them yourself.

Automatic programming

- 1 Choose * TUNER from the menu and press NEXT ▶.
- 2 Choose AUTO INST and press NEXT ▶.
→The preset number where programming will start, the waveband and AUTO are displayed.
- 3 Turn TUNER PRESET ◀ to change the preset number where programming should start.
- 4 Use TUNER AM/FM to switch to the desired waveband.
- 5 Press ENTER / OK to start programming.
→AUTO INST flashes and all available radio stations are programmed, this may take a few minutes. Programming is done when AUTO INST stops flashing.

Manual programming

- 1 Choose * TUNER from the menu and press NEXT ▶.
- 2 Choose MAN INST and press NEXT ▶.
→A preset number, the waveband and the frequency are displayed.
- 3 Turn TUNER PRESET ◀ to change to the preset number where the radio station should be stored.
- 4 Tune to the desired radio station (see "Searching for radio stations").
- 5 Press ENTER / OK to confirm your selection.
→STORE is displayed briefly. The radio station is programmed at the chosen preset number.
- 6 Select and store all desired radio stations this way.

INSTRUCTIONS FOR USE

TUNER

Tuning to stored radio stations

- 1 Turn SOURCE SELECTOR to TUNER to select the tuner.
→TUNER is displayed.
- 2 Turn TUNER PRESET $\blacklozenge$ to select a preset radio station.
→PRESET, the preset number and station are displayed.

Resorting stored radio stations

After programming radio stations, you might want to change their sequence. *RESHUFFLE* allows you to exchange the positions of presets.

- 1 Choose * TUNER from the menu and press NEXT $\blacktriangleright$.
- 2 Choose *RESHUFFLE* and press NEXT $\blacktriangleright$.
→PRESET, a preset number and station are displayed.
- 3 Turn TUNER PRESET $\blacklozenge$ to select a preset station.
- 4 Press ENTER / OK to confirm the selection.
→The selected preset number (–) and a second preset number are displayed.
- 5 Turn TUNER PRESET $\blacklozenge$ to select the other preset station.
- 6 Press ENTER / OK to confirm the exchange.
→RESHUFFLE is displayed briefly and these two preset numbers are swapped.

Naming radio stations

It is possible to assign a name to any of the preset radio stations. RDS station names also can be overwritten.

- 1 Choose * TUNER from the menu and press NEXT $\blacktriangleright$.
- 2 Choose *GIVE NAME* and press NEXT $\blacktriangleright$.
→A preset radio station is displayed.
- 3 Turn TUNER PRESET $\blacklozenge$ to select the preset to be renamed.
- 4 Press ENTER / OK to confirm your selection.
→The existing name or _____ is displayed.
- 5 Turn TUNER PRESET $\blacklozenge$ to select a letter and NEXT $\blacktriangleright$ or $\blacktriangleleft$ PREV. to move to the next or previous position.
- 6 After you have entered the entire name, press ENTER / OK to confirm.
→STORED is displayed and the name is stored.

Note: If you want to use the transmitted RDS station name again, simply clear the given name.

Clearing station names

- 1 Use the menu option * TUNER, choose *GIVE NAME*.
→A preset radio station is displayed.
- 2 Turn $\blacklozenge$ MENU NAVIGATOR to select the name to be cleared.
- 3 Press ENTER / OK to confirm your selection.
- 4 Press $\blacktriangleleft$ PREV. while the first letter is flashing.
→CL is flashing to the left of the station name.
- 5 Press ENTER / OK to clear the station name.
Or, if you have changed your mind,
press $\blacktriangleleft$ PREV. to leave the station name as it is.

INSTRUCTIONS FOR USE



Radio Data System is a service that allows FM stations to send additional information. If you are receiving an RDS station,  and the station name are displayed.

Switching through different RDS information

- Press **RADIO TEXT** on the receiver repeatedly to switch through the following information (if available):
 - Radio text messages
 - RDS clock
 - Frequency
 - Station name

Note: The time signal broadcasted from certain radio stations may not always be accurate.

RDS News and Traffic Announcement

It is possible to set up the tuner in such a way that any playback is interrupted by news or traffic information of a chosen RDS station. Announcement functions only work if the necessary RDS signals are being broadcast.

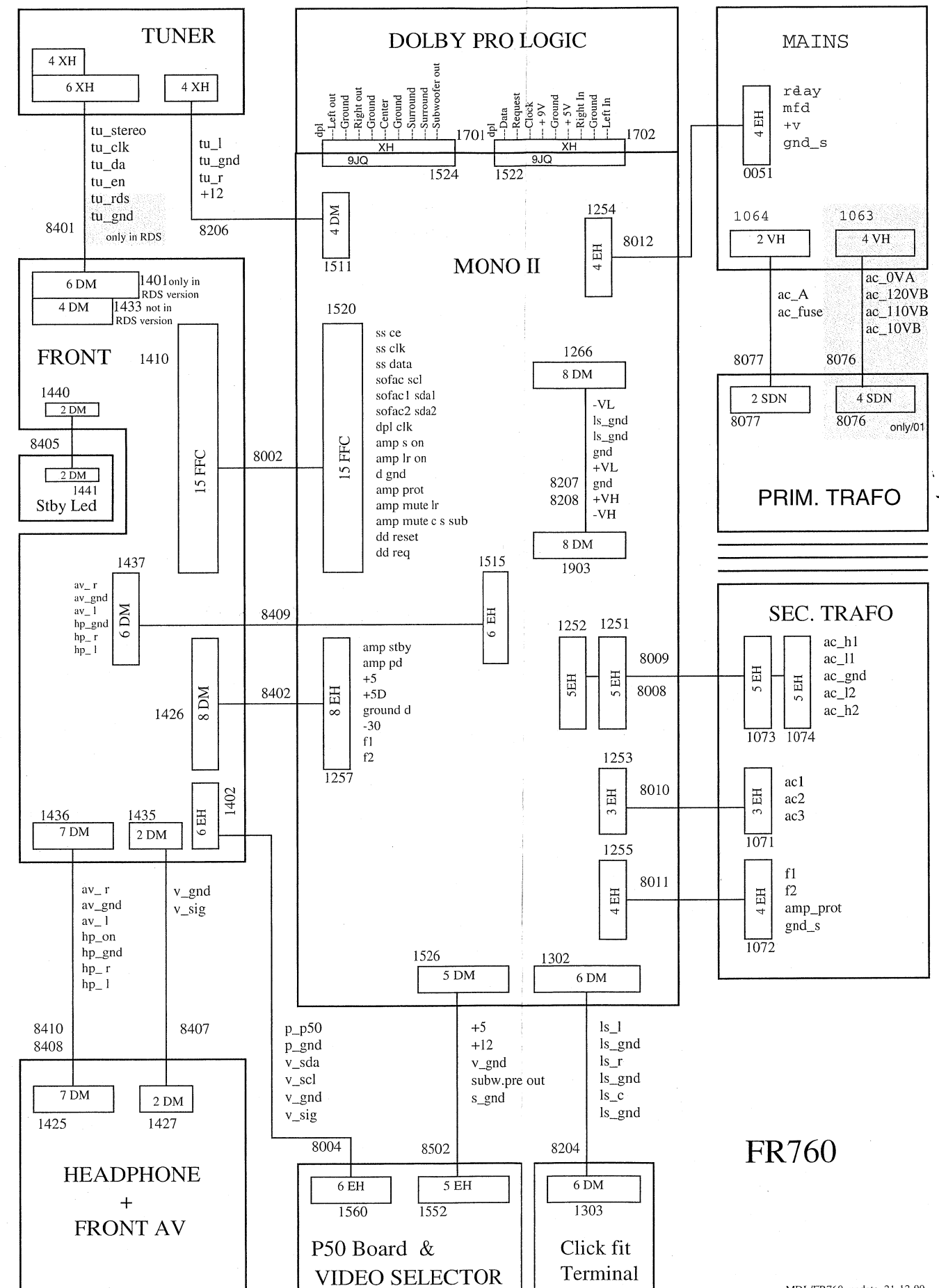
If RDS stations are also carrying an EON signal (**E**nanced **O**ther **N**etworks), **EON** is displayed. This signal enables the tuner to search not only the chosen RDS station, but the whole EON station network for news and traffic information.

- 1 Tune to the desired RDS station.
- 2 Press NEWS/TA:
Once to display **NEWS**, this switches on the news announcement function.
Twice to display **TA**, this switches on the traffic announcement function.
Three times to display **TA** and **NEWS**, this switches on both announcement functions.
- 3 Select and play any other source as usual.
→ While news or traffic information is being broadcast the receiver will switch to tuner and **NEWS** or **TA** will flash.
- 4 Press NEWS/TA until the display indication disappears to switch off the function(s).
or
Press NEWS/TA during an announcement to switch off the function(s).

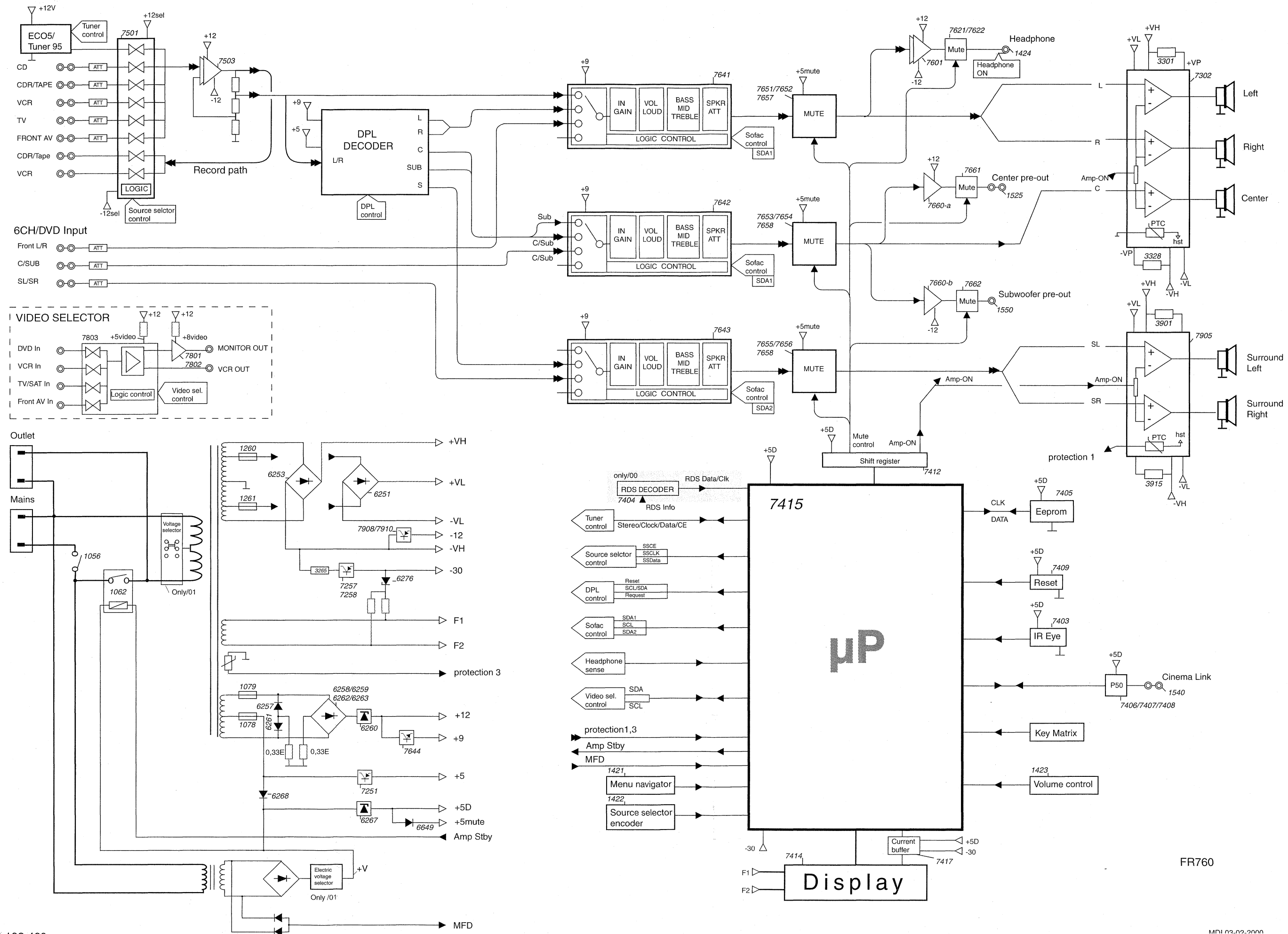
Note: Be sure to switch the news and traffic announcement off during recording, otherwise these announcements will also be recorded.

TUNER

WIRING DIAGRAM

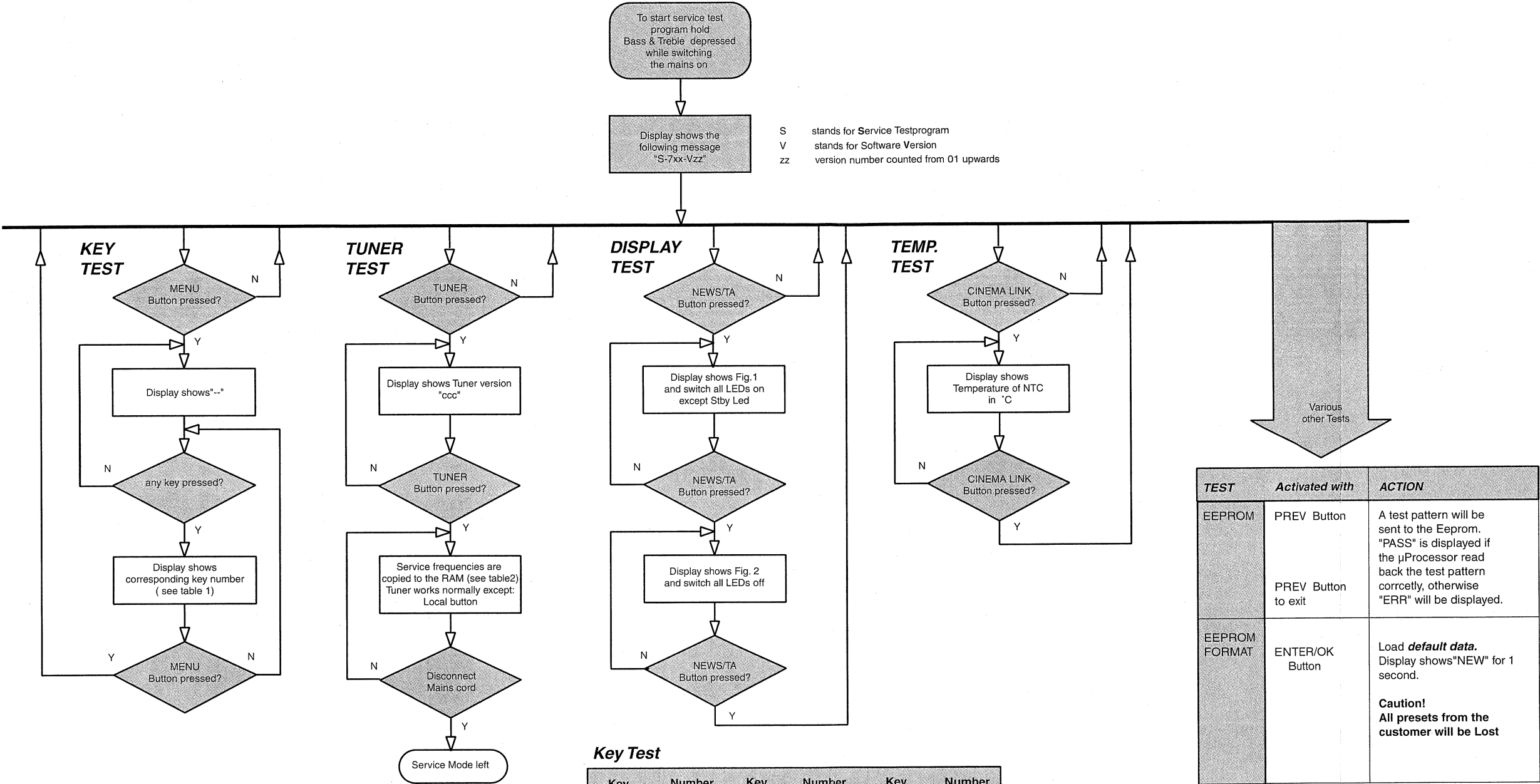


BLOCKDIAGRAM



FR760

SERVICE TEST PROGRAM



TEST	Activated with	ACTION
EEPROM	PREV Button	A test pattern will be sent to the Eeprom. "PASS" is displayed if the µProcessor read back the test pattern correctly, otherwise "ERR" will be displayed.
EEPROM FORMAT	ENTER/OK Button	Load default data . Display shows "NEW" for 1 second. Caution! All presets from the customer will be Lost

Tuner Test

Display info Version	Europe "EUR" /00	East Eur. 3-band "EEL" /14	East Eur. 2-band "EEU" /14	USA "USA" /17	Oversea "OSE" /01
Preset 1	87.5MHz	65.81MHz	65.81MHz	87.5MHz	87.5MHz
2	108MHz	108MHz	108MHz	108MHz	108MHz
3	531kHz	74MHz	74MHz	530kHz	531kHz
4	1602kHz	87.5MHz	87.5MHz	1700kHz	1602kHz
5	558kHz	531kHz	531kHz	560kHz	558kHz
6	1494kHz	1602kHz	1602kHz	1500kHz	1494kHz
7	153kHz	558kHz	558kHz	98MHz	---
8	279kHz	1494kHz	1494kHz	---	---
9	198kHz	153kHz	98MHz	---	---
10	98MHz	279kHz	70.01MHz	---	---
11	---	198kHz	---	---	98MHz

Table 2

This table is valid for all types of tuners.
Customer presets will not changed after this Tuner test.
If a station is tuned then the display flag "OK" will be ON otherwise it will be OFF.
If the tuned frequency is carrying RDS information, the display flag "RDS" will be ON.
Oversea version: the tuning grid can be switched between 9kHz and 10kHz by pressing the key "TUNER" for longer then 2 seconds. "Grid 9" or "Grid10" will be shown accordingly.
Grid 9kHz is in FM 50kHz, Grid 10kHz is in FM 100kHz
Europe version: the LW can be switched On and Off by pressing the key "TUNER" for longer than 2 seconds. LW OFF or LW ON will be shown accordingly.-

Key Test

Key	Number	Key	Number	Key	Number
Cinema	1	Sens	7	Loudness	13
Surr. on/off	2	News / TA	8	Bass	14
Surr. Mode	3	Prev.Exit	9	Treble	15
Hall	4	SetupMenu	--	Front AV	16
Tuner	5	Next	11		
Radio Text	6	Enter/OK	12		

Table 1

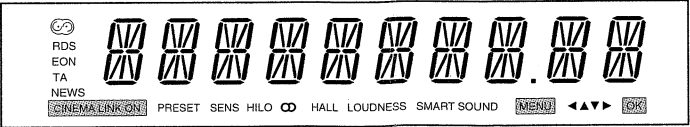


Figure 1

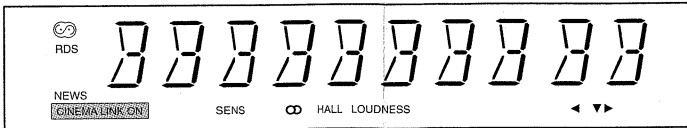
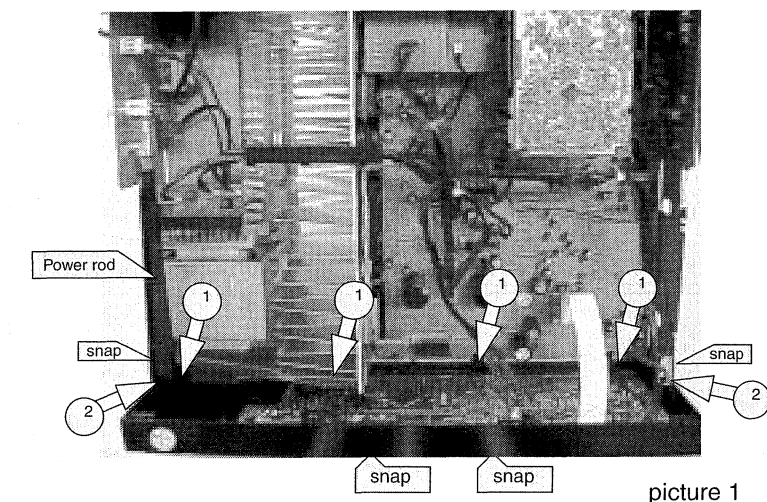


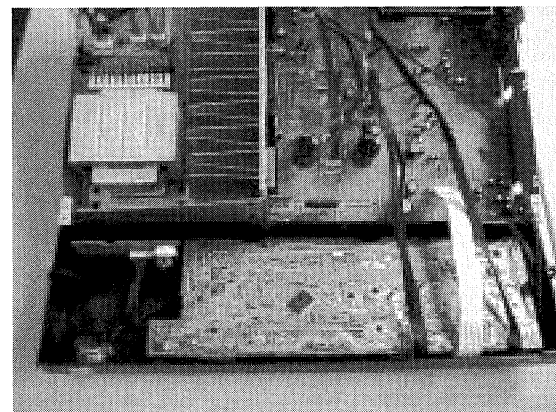
Figure 2

DISMANTLING HINTS

Dismantling of Front

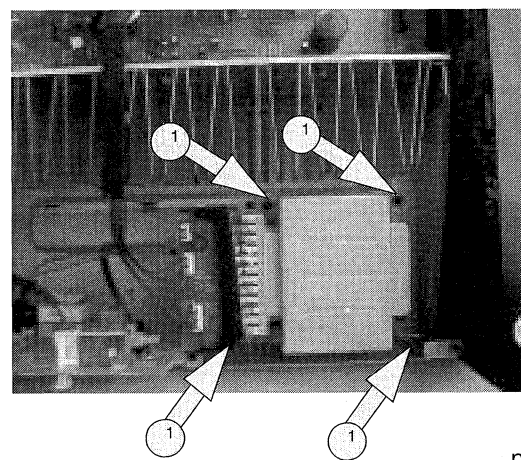


- 1) Remove top cover
- 2) Remove power rod
- 3) Remove 6 x screw as shown in picture 1
- 4) Release two snaps (left & right side front)
- 5) Release two snaps on the bottom side front
- 6) Tilt down front as shown in picture 2



picture 2

Dismantling of mainstrafo

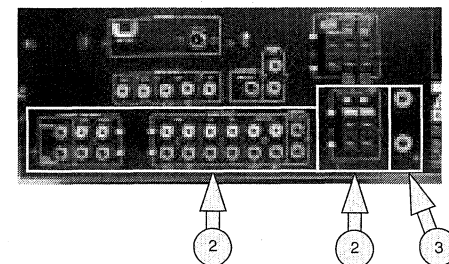


- 1) Remove power rod
- 2) Remove 4x screw as shown in picture 8

picture 8

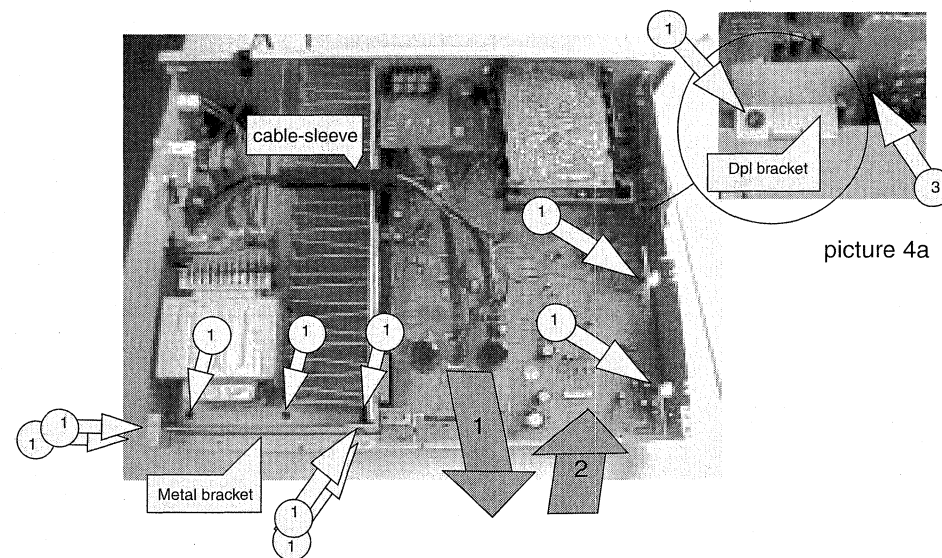
Dismantling of mono board

- 1) Remove front . See picture 1
- 2) Remove whole front (disconnect the wires on the mono board coming from front)



picture 3

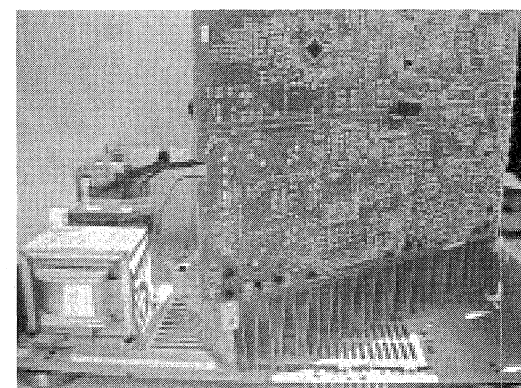
- 3) Remove 10 x screws shown in mentioned area . See picture 3



picture 4a

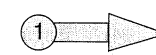
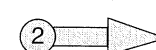
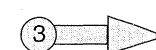
picture 4

- 4) Remove DPL bracket. See picture 4a
- 5) Remove wires out the cable-sleeve.
- 4) Remove 7 x screw and remove metal bracket
- 5) Remove 2 x screw on mono board . See picture 4
- 6) Remove mono board as shown arrow 1 & 2 . See picture 4
- 7) Bring the mono board in the service position as shown in picture 5



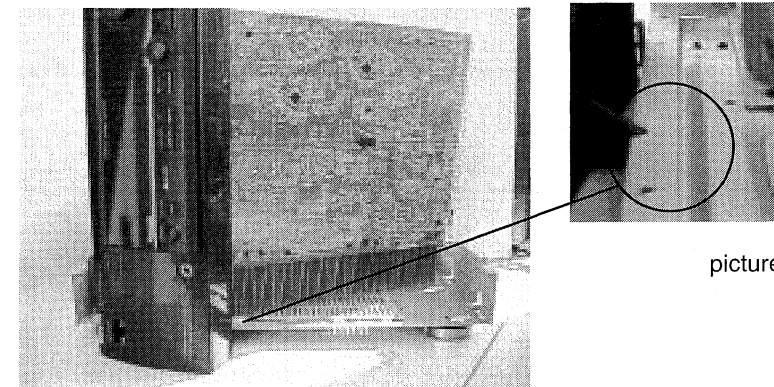
picture 5

Legend

-  = Torx M3x6mm (screw with big head)
 = Torx 3x10mm  = Torx M3x6mm

Service position monoboard

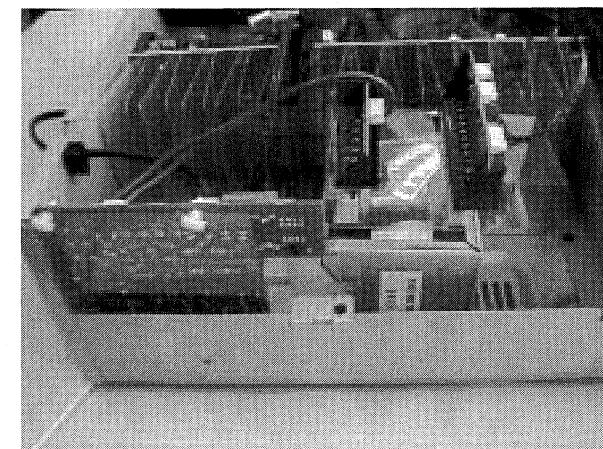
- 1) Bring front in position as shown in picture 6
 - 2) Snap nok of front in bottom to make front stable . See picture 7
 - 3) Connect front wiring back to monoboard.
- *The tuner module doesn't have to be connected. Use an other source (pe.CD)



picture 7

picture 6

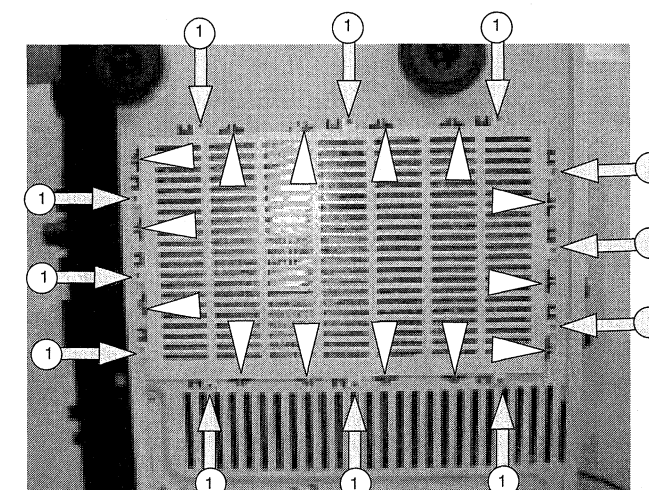
Service position main trafo



- 1) Put main trafo as shown in picture 9

picture 9

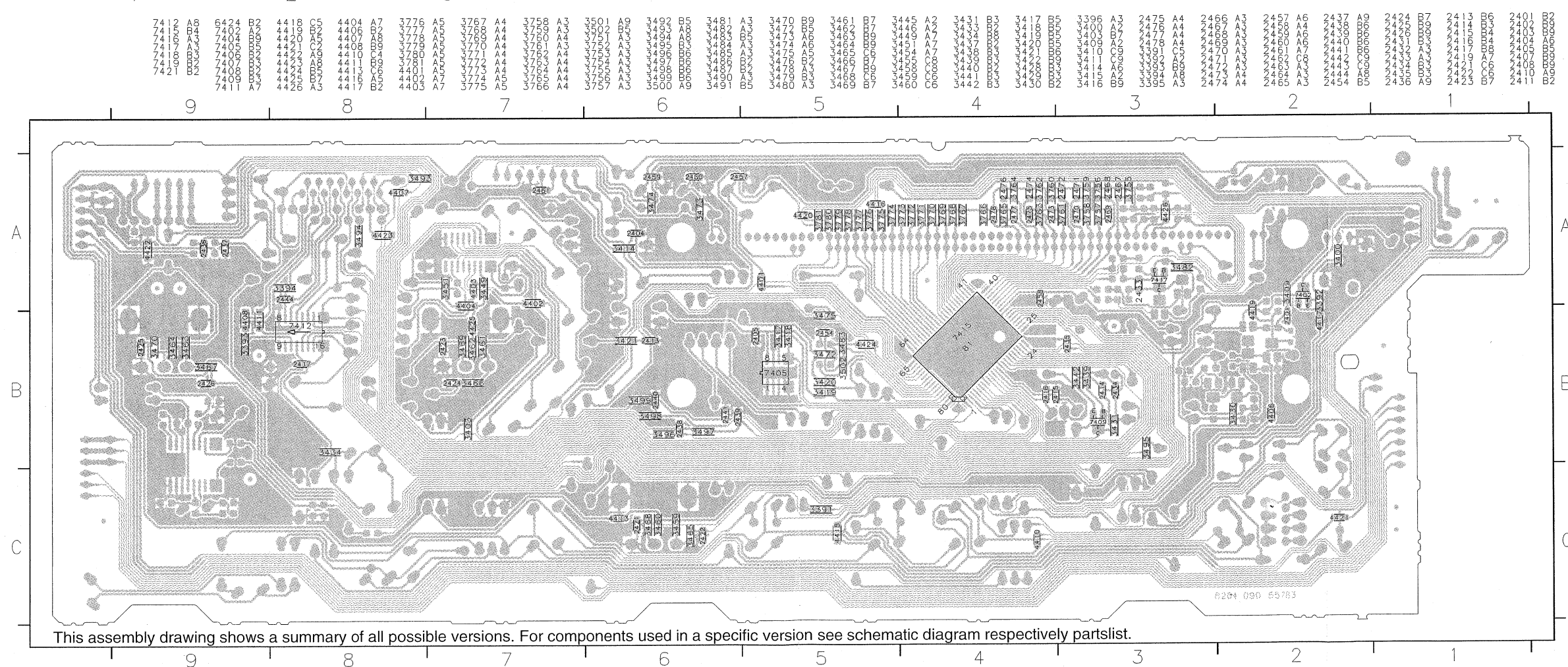
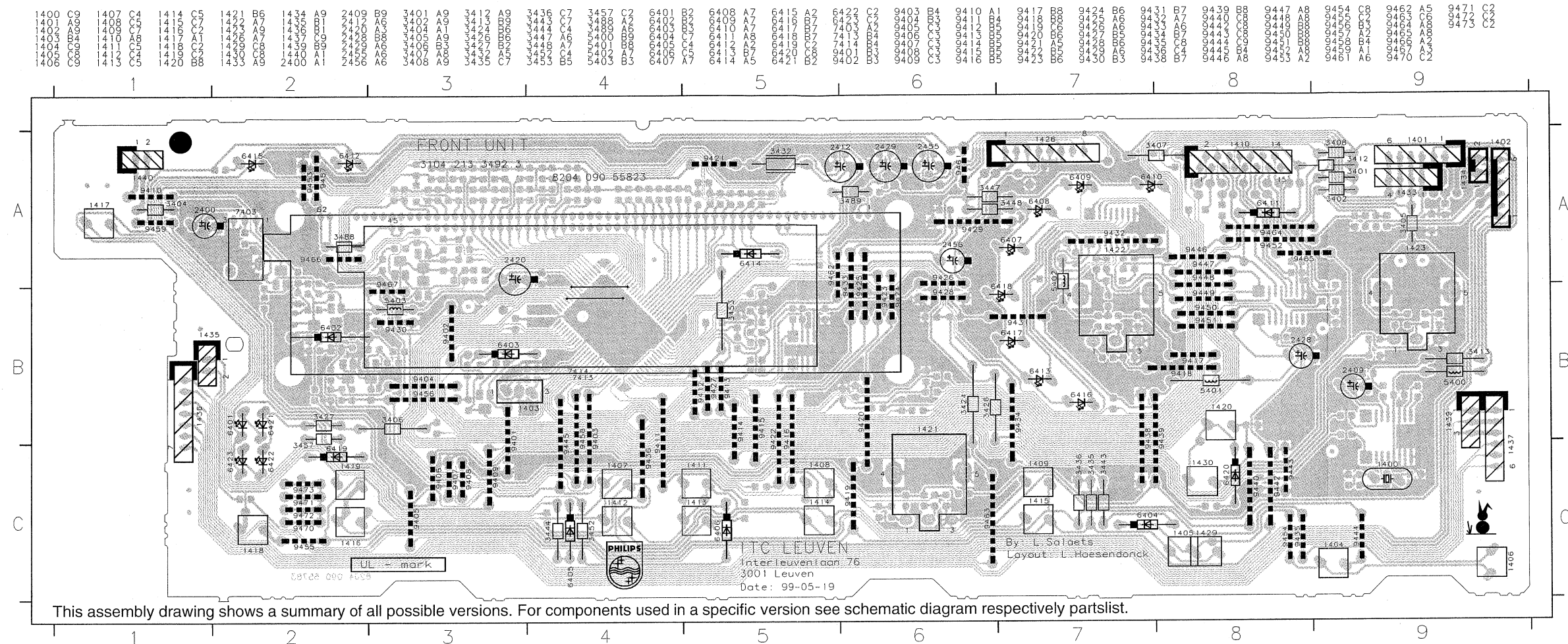
Handling service cover



picture 10

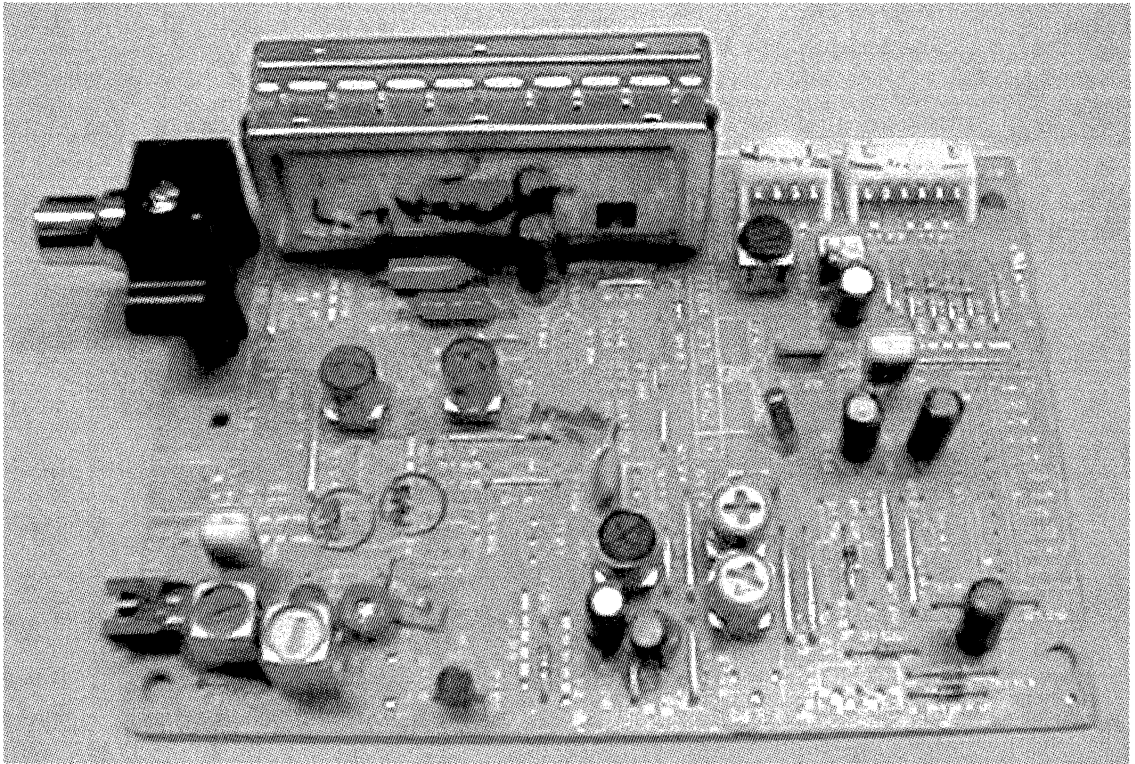
- 1) To open the service cover cut 14 x lugs between cover and bottom . See picture 10 (▽)
 - 2) To close the service cover put 12 x screw in mentioned holes. See picture 10
- Service codenumber 12x Torx M3x6mm screw with big head = 4822 502 14659

FRONT BOARD - COMPONENT & COPPER SIDE VIEW



ELECTRICAL PARTSLIST - FRONT BOARD

MISCELLANEOUS														
1400	482224211033	CRYSTAL 4,332MH	2454	532212232654	22NF10%X7R 63V	3441	482211711149	82K 1% 0,1W	3780	482205120333	33K00 5% 0,1W			
1403	482224272066	CRYSTAL 8,00MH	2455	482212441751	47UF 20% 50V	3442	482211710837	100K 1% 0,1W	3781	482205120333	33K00 5% 0,1W			
1404	482227613114	SWITCH, PUSH BUTTON	2456	482212441751	47UF 20% 50V	3443	482211652219	330E 5% 0,5W	4401	482205120008	0R00 JUMP. (0805)			
1405	482227613114	SWITCH, PUSH BUTTON	2457	532212232654	22NF10%X7R 63V	3444	482211652219	330E 5% 0,5W	4402	482205120008	0R00 JUMP. (0805)			
1406	482227613114	SWITCH, PUSH BUTTON	2458	532212232654	22NF10%X7R 63V	3447	482211652219	330E 5% 0,5W	4403	482205120008	0R00 JUMP. (0805)			
			2459	532212232654	22NF10%X7R 63V	3449	482211710837	100K 1% 0,1W	4404	482205120008	0R00 JUMP. (0805)			
1407	482227613114	SWITCH, PUSH BUTTON	2460	532212232654	22NF10%X7R 63V	3451	482211710833	10K 1% 0,1W	4406	482205120008	0R00 JUMP. (0805)			
1408	482227613114	SWITCH, PUSH BUTTON	2461	532212232654	22NF10%X7R 63V	3452	482211652219	330E 5% 0,5W	4407	482205120008	0R00 JUMP. (0805)			
1409	482227613114	SWITCH, PUSH BUTTON	2462	532212231647	1NF10%X7R 63V	3453	482211652219	330E 5% 0,5W	4408	482205120008	0R00 JUMP. (0805)			
1410	482226510981	15FE-BT-VK-N	2467	532212232531	100PF 5%NP0 50V	3454	482205120008	0R00 JUMP. (0805)	4410	482205120008	0R00 JUMP. (0805)			
1411	482227613114	SWITCH, PUSH BUTTON				3457	482211652219	330E 5% 0,5W	4411	482205120008	0R00 JUMP. (0805)			
			2468	532212232531	100PF 5%NP0 50V	3459	482211710833	10K 1% 0,1W	4413	482205120008	0R00 JUMP. (0805)			
1412	482227613114	SWITCH, PUSH BUTTON	2469	532212232531	100PF 5%NP0 50V	3459	482211710833	10K 1% 0,1W	4413	482205120008	0R00 JUMP. (0805)			
1413	482227613114	SWITCH, PUSH BUTTON	2470	532212232531	100PF 5%NP0 50V	3460	482211710833	10K 1% 0,1W	4416	482205120008	0R00 JUMP. (0805)			
1414	482227613114	SWITCH, PUSH BUTTON	2471	532212232531	100PF 5%NP0 50V	3461	482211710833	10K 1% 0,1W	4417	482205120008	0R00 JUMP. (0805)			
1415	482227613114	SWITCH, PUSH BUTTON	2472	532212232531	100PF 5%NP0 50V	3462	482211710833	10K 1% 0,1W	4418	482205120008	0R00 JUMP. (0805)			
1416	482227613114	SWITCH, PUSH BUTTON				3463	482211710833	10K 1% 0,1W	4420	482205120008	0R00 JUMP. (0805)			
1417	482227613114	SWITCH, PUSH BUTTON	2474	532212232531	100PF 5%NP0 50V	3464	482211710833	10K 1% 0,1W	4421	482205120008	0R00 JUMP. (0805)			
1418	482227613114	SWITCH, PUSH BUTTON	2475	532212232531	100PF 5%NP0 50V	3465	482211711503	220R 1% 0,1W	4422	482205120008	0R00 JUMP. (0805)			
1419	482227613114	SWITCH, PUSH BUTTON	2476	532212232531	100PF 5%NP0 50V	3466	482211711503	220R 1% 0,1W	4423	482205120008	0R00 JUMP. (0805)			
1421	482227310372	SWITCH ROTARY	2477	532212232531	100PF 5%NP0 50V	3467	482211711503	220R 1% 0,1W	4424	482205120008	0R00 JUMP. (0805)			
1422	482227310372	SWITCH ROTARY				3468	482211711503	220R 1% 0,1W	4425	482205120008	0R00 JUMP. (0805)			
1423	482227310365	ROTARY ENCODER 24P	2478	532212232531	100PF 5%NP0 50V	3469	482211711503	220R 1% 0,1W	4426	482205120008	0R00 JUMP. (0805)			
1424	482226511584	1P YKB21-5209	RESISTORS			3470	482211711503	220R 1% 0,1W	4450	482205120008	0R00 JUMP. (0805)			
8002	482232012706	FLEXIBLE FOIL 15P - 220MM	3391	482205110102	1K00 2% 0,25W	3471	482205110102	1K00 2% 0,25W	FILTERS					
CAPACITORS			3392	482205120223	22K00 5% 0,1W	3472	482205110102	1K00 2% 0,25W	5400	482215711477	LAL02TB2R2J			
2400	482212441584	100UF 20% 10V	3393	482205120223	22K00 5% 0,1W				5401	482215711477	LAL02TB2R2J			
2402	532212231647	1NF10%X7R 63V	3394	482205120223	22K00 5% 0,1W	3473	482205120008	0R00 JUMP. (0805)	5403	482215711477	LAL02TB2R2J			
2403	532211680853	560PF 5%NP0 63V	3396	482205110102	1K00 2% 0,25W	3474	482205120008	0R00 JUMP. (0805)	DIODES					
2404	532212231647	1NF10%X7R 63V				3475	482211710837	100K 1% 0,1W	6400	932210014682	LED STBY			
2405	532212232654	22NF10%X7R 63V	3400	482205120479	47R00 5% 0,1W	3482	482211710837	100K 1% 0,1W	6401	482213082978	SURROUND LED			
			3401	482205021003	10K00 1% 0,6W	3483	482211710837	100K 1% 0,1W	6402	482213030621	1N4148			
2407	532212234099	470PF10%X7R 63V	3402	482205021003	10K00 1% 0,6W				6403	482213030621	1N4148			
2408	532212232654	22NF10%X7R 63V	3403	482211711507	6K8 1% 0,1W	3488	482205024708	4R70 1% 0,6W	6404	482213030621	1N4148			
2409	482212422652	2,2UF20% 50V	3404	482211652219	330E 5% 0,5W	3489	482205024708	4R70 1% 0,6W						
2410	532212232654	22NF10%X7R 63V	3405	482211652257	22K 5% 0,5W	3490	482205120008	0R00 JUMP. (0805)	6405	482213030621	1N4148			
2411	482212233575	220PF 5% NP0 63V	3406	482205021003	10K00 1% 0,6W	3491	482211710837	100K 1% 0,1W	6406	482213030621	1N4148			
			3407	482205021003	10K00 1% 0,6W	3493	482205120471	470R00 5% 0,1W	6410	482213082978	SURROUND LED			
2412	482212441751	47UF 20% 50V	3408	482205021003	10K00 1% 0,6W	3494	482205120471	470R00 5% 0,1W	6411	482213030621	1N4148			
2413	532212232654	22NF10%X7R 63V	3409	482205110102	1K00 2% 0,25W	3496	482205120471	470R00 5% 0,1W	6414	482213030621	1N4148			
2414	532212232654	22NF10%X7R 63V				3497	482205120471	470R00 5% 0,1W						
2415	532212232658	22PF 5% 50V	3410	482211711449	2K2 1% 0,1W	3498	482205120471	470R00 5% 0,1W	6419	482213030621	1N4148			
2416	532212232658	22PF 5% 50V	3411	482211713579	220K 1% 0.1W RC12H				6421	482213082978	6CH/DVD LED			
			3412	482205021003	10K00 1% 0,6W	3499	482205120471	470R00 5% 0,1W	TRANSISTORS & ICs					
2417	532212232654	22NF10%X7R 63V	3413	482205011002	1K00 1% 0,4W	3755	482205120333	33K00 5% 0,1W	7402	482213011607	PDTA144ET			
2420	482212423432	100UF20% 10V	3414	482205110102	1K00 2% 0,25W	3756	482205120333	33K00 5% 0,1W	7403	482213010165	GP1U28XP			
2421	532212232654	22NF10%X7R 63V	3415	482205120008	0R00 JUMP.	3757	482205120333	33K00 5% 0,1W	7404	482220931981	SAA6579T			
2422	532212232654	22NF10%X7R 63V	3416	482211710833	10K 1% 0,1W	3758	482205120333	33K00 5% 0,1W	7405	482220917445	M24C08-MN6			
2423	532212232654	22NF10%X7R 63V	3417	482211710833	10K 1% 0,1W				7406	482213060511	BC847B			
			3418	482211710833	10K 1% 0,1W	3759	482205120333	33K00 5% 0,1W						
2424	532212232654	22NF10%X7R 63V	3419	482211710833	10K 1% 0,1W	3760	482205120333	33K00 5% 0,1W	7407	482213060511	BC847B			
2425	532212232654	22NF10%X7R 63V				3761	482205120333	33K00 5% 0,1W	7408	482213060511	BC847B			
2426	532212232654	22NF10%X7R 63V	3420	482211710833	10K 1% 0,1W	3762	482205120333	33K00 5% 0,1W	7409	482213060511	BC847B			
2427	532212231647	1NF10%X7R 63V	3421	482211710833	10K 1% 0,1W	3763	482205120333	33K00 5% 0,1W	7412	532220911306	HEF4094BT			
2428	482212440769	4,7UF20% 100V	3422	482211710833	10K 1% 0,1W				7414	482213500275	DISPLAY			
			3424	482205011002	1K00 1% 0,4W	3764	482205120333	33K00 5% 0,1W						
2429	482212441751	47UF 20% 50V	3426	482205011002	1K00 1% 0,4W	3765	482205120333	33K00 5% 0,1W	7415	482220917446	TMP87CS71F/FR755.1			
2433	532212232531	100PF 5%NP0 50V	3427	482211683868	150R 5% 0,5W	3766	482205120333	33K00 5% 0,1W	7417	482213060511	BC847B			
2434	482212614076	220N 25V. P8020	3428	482205120273	27K00 5% 0,1W	3767	482205120333	33K00 5% 0,1W						

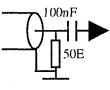


TUNER 95 BOARD

TABLE OF CONTENTS

Adjustment table	7A-2
Blockdiagram	7A-3
Component layout	7A-4
Circuit diagram	7A-5
Partslist	7A-6

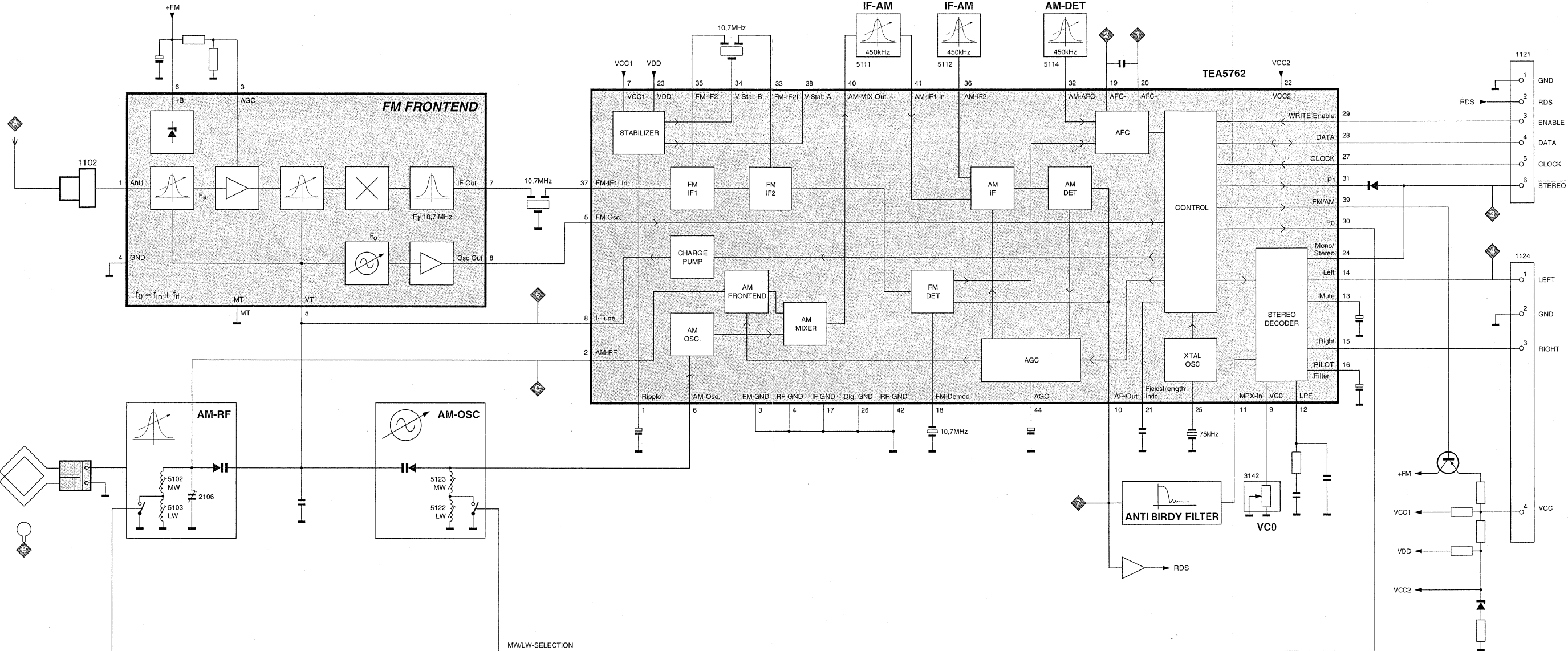
TUNER 95 bis Adjustment Table (FM, MW, LW with Frame antenna)

Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
VARICAP ALIGNMENT						
FM (50) 87.5 - 108 MHz			108 MHz	check	6	7 ... 9V
			87.5 MHz	check		1.3 ... 2V
MW (9) 531 - 1602 kHz			1602 kHz	5123		8.3V ± 0.2V
			531 kHz	check		1V ± 0.4V
LW (3) 153 - 279 kHz			279 kHz	5122		8.3V ± 0.2V
			153 kHz	check		1V ± 0.4V
FM – DETECTION						
FM	98 Mhz 1mV continuous wave short pin 21 (IC7101) to ground	A	98 MHz	5107	1 2	0mV ± 3mV
FM – VCO						
FM	98 Mhz 1 mV continuous wave	A	98 MHz	3142	3	152kHz ± 1 kHz
DISTORTION						
FM	98 Mhz 1 mV 90 % L + 9 % pilot mod = 1kHz	A	98MHz	mixcoil inside Tuner 1110	4	Distortion minimum
AM – IF						
MW	450kHz Δf = 10kHz Low as possible Swept signal		MW	5111	7	symmetrical and max. height
				5112		
	450kHz continuous wave	C		5114	1 2	0mV ± 2mV
AM - RF						
MW	558kHz Mod = 1kHz 30 % AM 1494 kHz	B	558kHz	5102	7	MAX
			1494kHz	2106		
LW	198kHz mod = 1kHz 30 % AM	*	198kHz	5103		MAX

* Signal send via a frame antenna
(..) = tuning grid in kHz

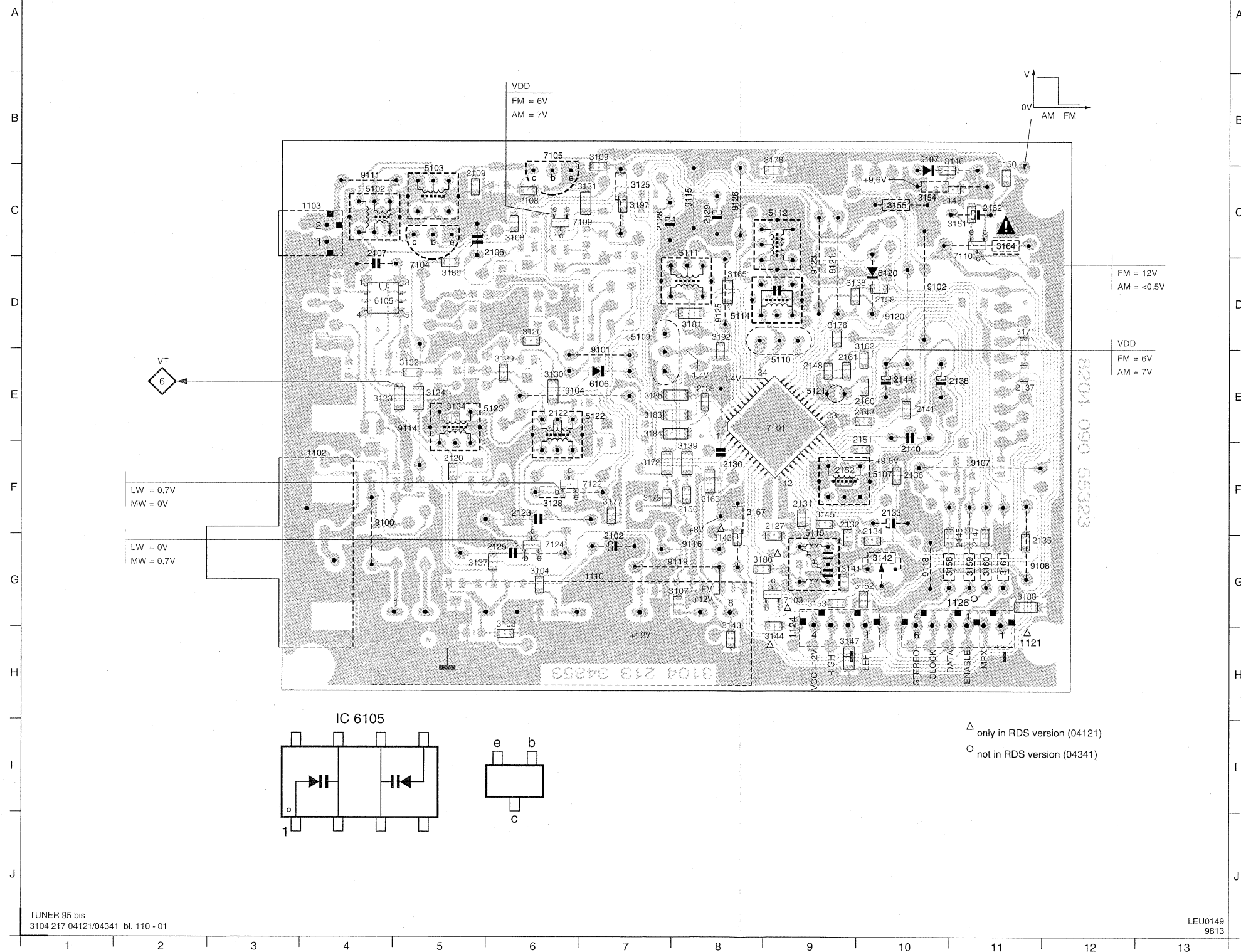
↑
repeat
↓

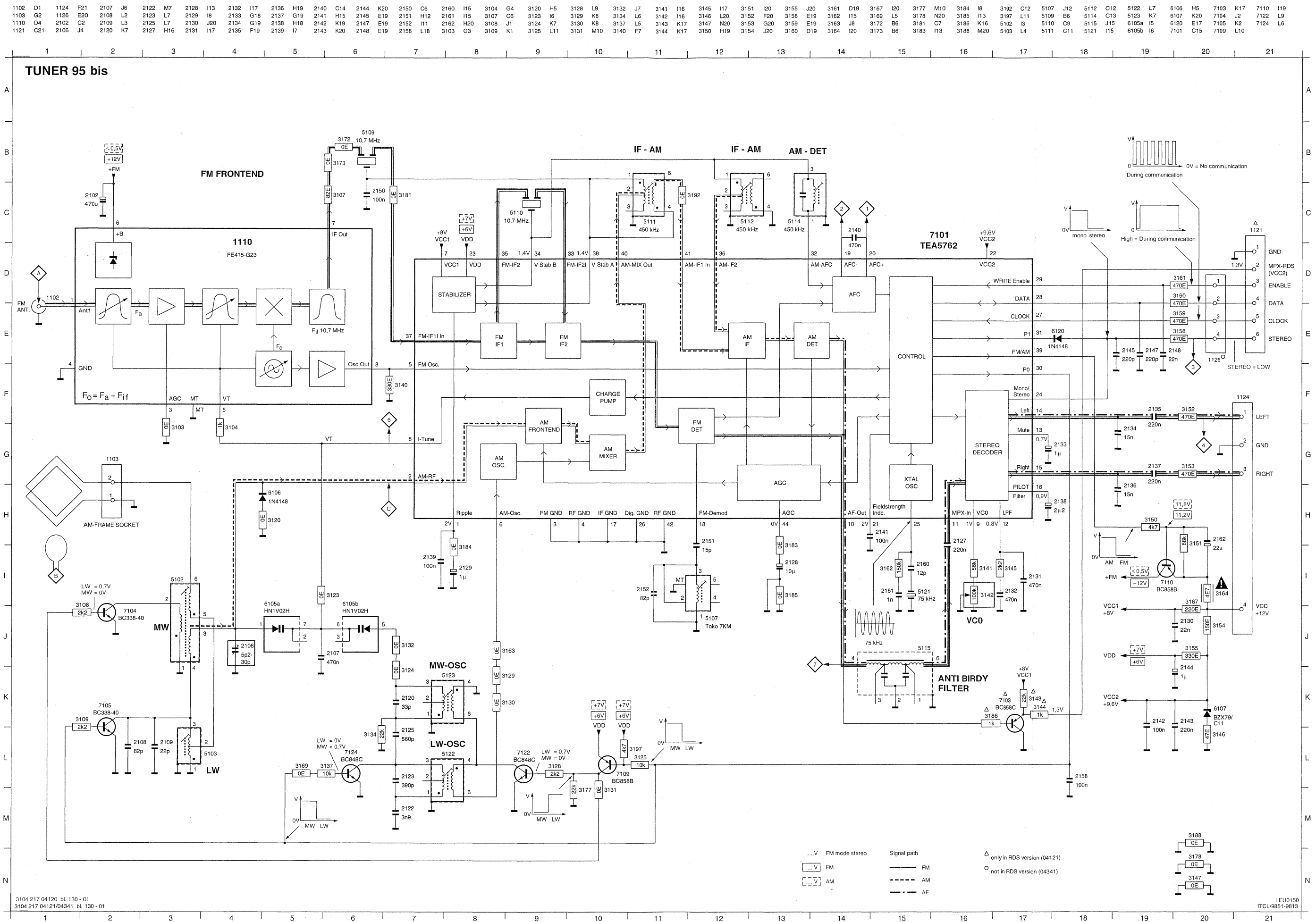
adtable for 3104 217 04121/04341



1102	F4	2107	C4	2128	C7	2136	G10	2144	E10	2160	E9	3120	D6	3132	E5	3143	G8	3153	G9	3163	F8	3176	D9	3188	G11	5111	C8	6106	E7	7110	D11	9108	G11	9121	D9
1103	C4	2108	C6	2129	C8	2137	E11	2145	G11	2161	E9	3123	E4	3134	E5	3144	H9	3154	C10	3164	C11	3177	F7	3192	D8	5112	C9	6107	B10	7122	F7	9111	C4	9123	D9
1110	G7	2109	C5	2130	F8	2138	E10	2147	G11	2162	C11	3124	E5	3137	G5	3145	F9	3155	C10	3165	D8	3178	B8	3197	C7	5114	D8	6120	D10	7124	G6	9114	E5	9125	D8
1121	H11	2120	F5	2131	F9	2139	E8	2148	E9	3103	H6	3125	C7	3138	D9	3146	B10	3158	G11	3167	F8	3181	D8	5102	C4	5115	G9	7101	E9	9100	F4	9115	C8	9126	C8
1124	H9	2122	E6	2132	F9	2140	F10	2150	F8	3104	G6	3128	F6	3139	F8	3147	H9	3159	G11	3169	D5	3183	E7	5103	C5	5121	E9	7103	G9	9101	E7	9116	G8		
1126	G10	2123	F6	2133	F10	2141	E10	2151	F9	3107	G7	3129	E6	3140	H8	3150	C11	3160	G11	3171	D11	3184	E7	5107	F10	5122	E7	7104	D5	9102	D10	9118	G10		
2102	G7	2125	G6	2134	G10	2142	E9	2152	F9	3108	C6	3130	E6	3141	G9	3151	C10	3161	G11	3172	F7	3185	E7	5109	D7	5123	E5	7105	B6	9104	E6	9119	G7		
2106	C5	2127	F9	2135	G11	2143	C10	2158	D10	3109	B7	3131	C6	3142	G10	3152	G9	3162	D9	3173	F7	3186	G8	5110	E9	6105	D4	7109	C6	9107	F11	9120	D10		

TUNER 95 bis Combi: Copper side view



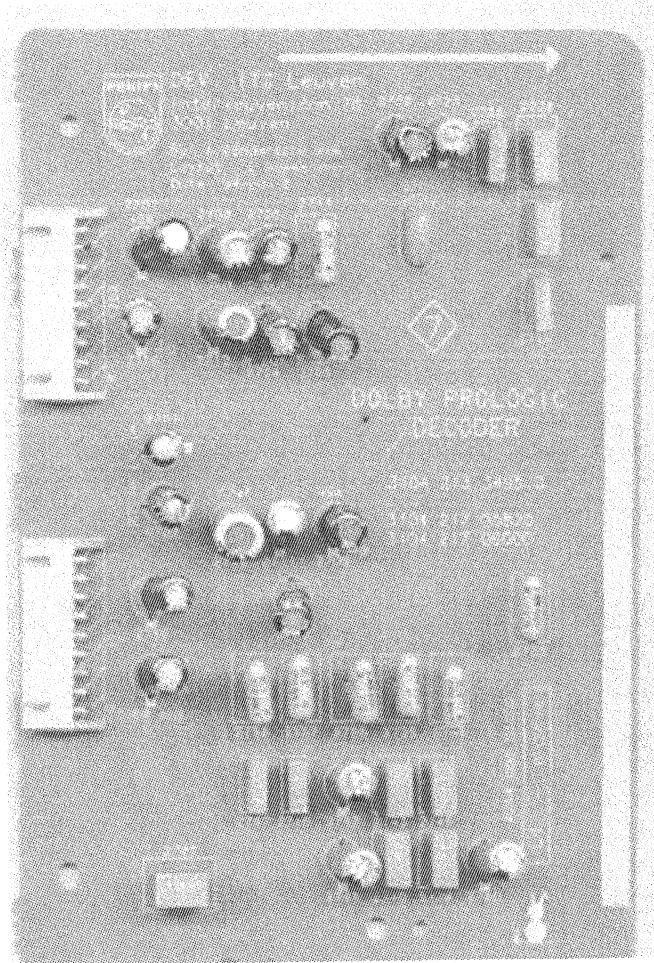


ELECTRICAL PARTSLIST - TUNER 95 BOARD

MISCELLANEOUS			RESISTORS		
1102	4822 267 10283	YKD31-0432	3103	4822 051 20008	0R00 JUMP. (0805)
1103	4822 265 31184	S2B-XH-A-BK	3104	4822 051 10102	1K002% 0,25W
1110	4822 210 10739	FE415-G23	3107	4822 051 20829	82R005%0,1W
CAPACITORS			3108	4822 117 11449	2K2 1%0,1W
2102	4822 124 80791	470UF20%16V	3109	4822 117 11449	2K2 1%0,1W
2106	4822 125 60102	5P2-30P N750100V	3110	4822 051 20008	0R00 JUMP. (0805)
2107	4822 121 51252	470NF 5%63V	3111	4822 051 20008	0R00 JUMP. (0805)
2108	4822 126 13695	82PF 1% NP063V	3120	4822 051 20008	0R00 JUMP. (0805)
2109	5322 122 32658	22PF 5% 50V	3123	4822 051 10008	0R005% 0,25W
2120	5322 122 32659	33PF5%50V	3124	4822 051 10008	0R005% 0,25W
2122	5322 126 10465	3,9NF 10% X7R 50V 08	3125	4822 116 83864	10K5%0,5W
2123	4822 121 10766	390PF 1% 630V KP464	3128	4822 116 52256	2K2 5%0,5W
2125	4822 121 10578	560P1%630V	3129	4822 051 20008	0R00 JUMP. (0805)
2127	4822 122 32927	220NF +80-20%Y5V 50V	3130	4822 051 10008	0R005% 0,25W
2128	4822 124 41579	10UF 20% 50V	3131	4822 051 10008	0R005% 0,25W
2129	4822 124 40242	1UF20%63V	3132	4822 051 20008	0R00 JUMP. (0805)
2130	4822 126 11585	22NF+80-20% Y5V 25V	3134	4822 051 20223	22K005%0,1W
2131	4822 122 33325	470NF 16V	3135	4822 051 20008	0R00 JUMP. (0805)
2132	4822 122 33325	470NF 16V	3137	4822 117 10833	10K1%0,1W
2133	4822 124 40242	1UF20%63V	3138	4822 051 20008	0R00 JUMP. (0805)
2134	4822 126 13188	15NF 5% X7R63V	3139	4822 051 10008	0R005% 0,25W
2135	4822 122 32927	220NF +80-20%Y5V 50V	3140	4822 051 20331	330R005%0,1W
2136	4822 126 13188	15NF 5% X7R63V	3141	4822 117 11148	56K1%0,1W
2137	4822 122 32927	220NF +80-20%Y5V 50V	3142	4822 100 11163	100K30%LIN0,1W
2138	4822 124 41576	2,2UF 20% 50V	3143	4822 051 20223	22K005%0,1W
2139	4822 126 10002	100NF20%Y5V 25V	3144	4822 051 10102	1K002% 0,25W
2140	4822 121 51252	470NF 5%63V	3145	4822 117 11449	2K2 1%0,1W
2141	4822 122 31947	100NF20%Y5V 63V	3146	4822 051 20479	47R005%0,1W
2142	4822 122 31947	100NF20%Y5V 63V	3147	4822 051 10008	0R005% 0,25W
2143	4822 122 32927	220NF +80-20%Y5V 50V	3150	4822 051 20472	4K705%0,1W
2144	4822 124 40242	1UF20%63V	3151	4822 051 20683	68K005%0,1W
2145	4822 122 33575	220PF5%NPO50V	3152	4822 051 20471	470R005%0,1W
2147	4822 122 33575	220PF5%NPO50V	3153	4822 051 20471	470R005%0,1W
2148	4822 122 33809	22NF20%Y5V 50V	3154	4822 116 83868	150R5%0,5W
2150	4822 122 31947	100NF20%Y5V 63V	3155	4822 116 52219	330E5%0,5W
2151	4822 126 14236	50V 15P 5%	3158	4822 116 83883	470R5%0,5W
2152	4822 126 13695	82PF 1% NP063V	3159	4822 116 83883	470R5%0,5W
2158	4822 122 31947	100NF20%Y5V 63V	3160	4822 116 83883	470R5%0,5W
2160	4822 122 32139	12PF 2%NP0 63V	3161	4822 116 83883	470R5%0,5W
2161	5322 122 34123	1NF10%X7R 50V	3162	4822 051 20224	220K005%0,1W
2162	4822 124 81151	22UF 50V	3163	4822 051 10008	0R005% 0,25W
			3164	4822 052 10478	4R705% 0,33W
			3165	4822 051 10008	0R005% 0,25W
			3167	4822 116 83872	220R5%0,5W
			3169	4822 051 20008	0R00 JUMP. (0805)
			3171	4822 051 20008	0R00 JUMP. (0805)
			3172	4822 051 10008	0R005% 0,25W
			3173	4822 051 20008	0R00 JUMP. (0805)
			3176	4822 051 20008	0R00 JUMP. (0805)
			3177	4822 051 20223	22K005%0,1W

ELECTRICAL PARTSLIST - TUNER 95 BOARD

RESISTORS			DIODES		
3178	4822 051 10008	0R005% 0,25W	6105	4822 130 83075	HN1V02H-B
3181	4822 051 10008	0R005% 0,25W	6106	4822 130 30621	1N4148
3183	4822 051 10008	0R005% 0,25W	6107	4822 130 34488	BZX79-B11
3184	4822 051 10008	0R005% 0,25W	6120	4822 130 30621	1N4148
3185	4822 051 10008	0R005% 0,25W	TRANSISTORS & INTERGRATED CIRCUITS		
3186	4822 051 10102	1K002% 0,25W	7101	4822 209 90315	TEA5762H/V1
3188	4822 051 10008	0R005% 0,25W	7103	4822 130 42513	BC858C
3192	4822 051 20008	0R00 JUMP. (0805)	7104	5322 130 44779	BC338-40
3197	4822 051 20472	4K705%0,1W	7105	5322 130 44779	BC338-40
COILS & FILTERS			7109	5322 130 41983	BC858B
5102	4822 157 71634	MW AERIAL	7110	5322 130 41983	BC858B
5103	4822 157 71635	LW AERIAL	7122	5322 130 42136	BC848C
5107	4822 157 11443	2U4 10M7	7124	5322 130 42136	BC848C
5109	4822 157 71639	SFE10,7MJA10H-A-TF21			
5110	4822 242 70665	SFE10,7MS3-A			
5111	4822 158 60511	AM-1F			
5112	4822 157 70302	F7MCS-12216N			
5114	4822 157 70302	F7MCS-12216N			
5115	4822 157 71636	BIRDIE COIL			
5121	4822 242 10261	T6252F00 (75KHZ)			
5122	4822 157 60517	110,00 UH8%			
5123	4822 157 60517	110,00 UH8%			



DOLBY PROLOGIC BOARD

TABLE OF CONTENTS

Test description	8-2
Circuit diagram	8-5
Component layout	8-6
Partslist	8-7

DOLBY PROLOGIC TEST DESCRIPTION

- The intention of this description is to explain the most important performance measurements for **DPL (Dolby Pro-Logic)** sets for service.
- Test instruments (recommended) :
 - Dolby Prologic test CD 4822 395 10216
 - AC mv meters (4x) L, C, R, S
 - Oscilloscope (double beam)
 - Distortion meter
 - CD player.

WARNING: Be sure that the ground connection (-) of each instrument is not connected with the safety earth $\perp$ connection. To avoid damage to output amplifiers (balance type) Use only cinch (input) ground connection

STARTING CONDITION :

- Replace the loudspeakers for all four output amplifiers with loud resistors according the output impedance for each amplifier (or use $8\ \Omega$ as standard loudresistor).
- Set volume to min. position
- Set Bass + Treble at 0 db .
- Select Surround <Prologic> .
- Select "LARGE" size for Center channel.
- Set time delay in Surround channel at 20 msec.
- Dolby Prologic test CD in CD player.

SERVICE TEST DESCRIPTION

Test 1 : Output and balance setting for all four channels

Select track 2 :

Adjust L, C, R and S for $\approx 1W$ output on the loudresistor with master volume. Adjust with L/R balance and Centre/Surround "TRIM" all four channels to equal level (equal meter readings)

Note: 1Watt output corresponds with 2.83V across $8\ \Omega$

$$P = U^2/R \rightarrow U = \sqrt{P \times R} = \sqrt{1 \times 8} = 2,83V$$

Test 2 : Frequency response for Left and Right channel

Requirement : -3 dB points at $\leq 50\text{ Hz}$ and $\geq 15\text{ kHz}$

Select track 3:

measure (and note) the overall gain of Left channel across the load resistor.

Select track 4:

measure (and note) the overall gain on Right channel across the load resistor.

Test 3 : Frequency response for Center channel

2 possibilitie :

1- Center size "LARGE" requirements : -3 dB at $\leq 50\text{ Hz}$ and $\geq 15\text{ kHz}$ (same as L/R requirements)

2- Center size "SMALL" requirements : -3 dB point at $\pm 100\text{ Hz}$ and $\geq 15\text{ kHz}$ (the difference is the roll-off behaviour of the bass frequencies).

Select track 5 :

measure (and note) the overall gain of Center channel across the load resistor in "LARGE" size (only in sets with this option) and repeat this measurement in "SMALL" size.

Test 4 : Frequency response for Surround channel

Surround requirements : -3 dB point at $\leq 100\text{ Hz}$ and $\pm 7\text{ kHz}$ (6 kHz ... 8 kHz)

The difference is the roll-off behaviour of the high treble frequencies.

Select track 6 :

measure (and note) the overall gain of Surround channel across the loud resistor.

Test 5 : Modified Dolby B type NR decoding freq. response of the Surround channel

Requirement : Roll off behaviour at $\pm 5\text{ kHz}$ related to 100 Hz. In this case use 100 Hz as 0 dB reference gain.

Select track 14:

measure (and note) the overall gain of Surround channel across the load resistor.

Note : The output level on track 14 = -35 dB below the 1W output reference of the Surround channel.

Test 6 : Total harmonic distortion measurements for Left, Center, Right, Surround channels for 1 Watt output

Note : If necessary use a special CD test filter 20 Hz ... 20 kHz between the output channel and the distortion meter to prevent spurious products out of audio waves ($> 20\text{ kHz}$) from to the CD player in test.

Select track 3 :

Measure distortion at 1 kHz across the Left channel.

Output load resistor : requirement THD $< 0,3\%$

Select track 4 :

Measure distortion at 1 kHz across the Right channel.

Output load resistor : requirement THD $< 0,3\%$

Select track 5 :

Measure distortion at 1 kHz across the Center channel.

Output load resistor : requirements THD $< 0,3\%$

Center size "LARGE" (if exists) and repeat for center size "SMALL"

Select track 6 :

Measure distortion at 1 kHz across the Surround channel load resistor.

Note : time delay setting = 20 msec.

Requirement THD = $< 0,5\%$

Test 7 : Signal to noise measurements for Left output amplifier

Select track 3 :

Use 1W output at 1 kHz on the Left channel output loud resistor as 0 dB reference.

Select track 13 :

(silence) and measure the S/N ratio. ---> with ccir/arm filter

Requirements for Left channel $\leq -65\text{ dB}$

Test 8 : Signal to noise measurements for Right output amplifier

Select track 4 :

Use 1W output at 1 kHz on the Right channel output loud resistor as 0 dB reference.

Select track 13 :

(silence) and measure the S/N ratio.

Requirement for Right channel $\leq -65\text{ dB}$

Test 9 : Signal to noise measurements for Center output amplifier

Select track 5 :

Use 1W output at 1 kHz on the Center channel (size "SMALL" or "LARGE")

Select track 13 :

(silence) and measure the S/N ratio.

Requirement for Center channel (size "SMALL" or "LARGE") $\leq -65\text{ dB}$

Test 10 : Signal to noise measurements for Surround output amplifier

Select track 6 :

Use 1W output at 1 kHz on the Surround channel output loud resistor as 0 dB reference.

Select track 13 :

(silence) and measure the S/N ratio.

Requirement for Surround channel $\leq -55\text{ dB}$ (in all positions between 15 msec ... 30 msec in sets with variable time delay).

Cross-talk (channel separation) between adjacent and opposite channels

2 possibilities :

1- Centre size "LARGE" (use 1 kHz tone)

Test 11a:

Select track 3 :

For 1 kHz in Left channel and measure the crosstalk in Center, Right, Surround.

Requirement : $< -25\text{ dB}$

Test 12a :

Select track 4 for 1 kHz in Right channel and measure the crosstalk in Surround, Left, Center.

Requirement : $< -25\text{ dB}$

Test 13a :
Select track 5 :
For 1 kHz in Center channel and measure the crosstalk in Left, Right, Surround.

Requirement : < -25 dB

Test 14a :
Select track 6 :
For 1 kHz in Surround channel and measure the crosstalk in Left, Center, Right.
Requirement : < -25 dB

2- Centre mode “normal” (use 3 kHz or 1 kHz tone)

Test 11b :
Select track 3 :
For 3 kHz in Left channel and measure the crosstalk in Center, Right, Surround
Requirement : < -25 dB

Test 12b :
Select track 4 :
For 3 kHz in Right channel and measure the crosstalk in Surround, Left, Center
Requirement : < -25 dB

Test 13b :
Select track 5 :
For 3 kHz in Centre channel and measure the crosstalk in Left, Right, Surround
Requirement : < -25 dB

Test 14b :
Select track 6 :
For 1 kHz in Surround channel and measure the crosstalk in Left, Center, Right
Requirement : < -25 dB

Inputs overload test (headroom to visible clipping)

General :
Before starting these tests set Master Volume -15 dB lower to make a new output reference (1W on loudresistors).
Requirement : check on scope for no visible signal clipping or measure THD <1,5 %

Test 15 :
Select track 7 :
Check the Left output signal between 20 Hz ... 20 kHz

Test 16 :
Select track 8 :
Check the Right output signal between 20 Hz ... 20 kHz

Test 17 :
Select track 9 :
Check the Center output signal
CENTER “SMALL” between 100 Hz ... 20 kHz
CENTER “LARGE” between 20 Hz ... 20 kHz

Test 18 :
Select track 11 :
Check the Surround output signal between 50 Hz ... 7 kHz

Test 19 :Center Mode Check
Select Center size “SMALL”.
a - Select track 5 at 1 kHz :
Adjust the Center output again with master volume for 1W output as 0 dB reference.
b - Select on track 5 the 100 Hz :
Signal to check the roll-off behaviour at -3 dB on the Center output
c - Select on track 5 the 50 Hz :
Signal and measure on the Left and Right output channels.
The lost 50 Hz signal on the Center output is equally splitted and added to the L and R channels.

Test 20 : Center Mode Check
Select Center size “LARGE”
Repeat test 19 a,b and c
The difference is no roll off behaviour at 100 Hz (Center) and no splitted bass (50 Hz signal) added to L and R.

Test 21 : Center Mode Check
Select Center mode phantom = Center speaker “No”
Select track 5 (20 Hz ... 20 kHz) :
No output signals on the Center output or at least minimum -40 dB related to 1W outputs.
Measure now on the Left and Right output channels : the lost Center signals are equally splitted and added to these left and right channels (- 3 dB)

Test 22 : 3 CH mode control
Select Front 3 stereo (Rear speaker “No”)
Select track 6 (100 Hz ... 7 kHz):
No output signals on the Surround output channel or at least minimum -40 dB related to 1W output.
Measure now at the Left and Right output channels : the lost Surround signals are equally splitted and added to the Left and Right output channels (-3 dB)

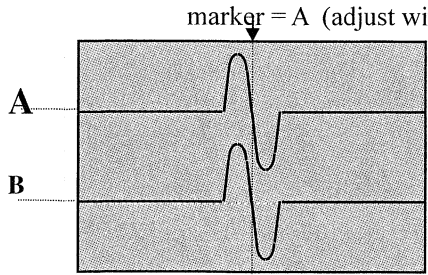
Test 23 : 2 CH mode control (stereo)
Select Surround “OFF”
Select track 5 :
No output on Centre output channel
Select track 6 :
No output on Surround output channel

Test 24 : Time delay control in Surround channel

- Principle description encoded burst signal spots (see fig. 1)
 - 1- Tone burst 1 kHz during 1 msec with interval time at 20 msec are given at the same time to the L; R inputs. (in phase 0°)
 - 2- The next tone burst is given at the same time to the L R input, but in reverse phase to the R input (180°). These 2 tone bursts are repeated continuously during 2 minutes.
- Principle description decoded signal spots in Center/Surround channel
 - In case of 20 msec time delay mode the results are shown in fig. 1 in Center and Surround channel. The center spots in Center channel can be used as “Marker” spots (trigger signal) → repeated every 40 msec. The delayed surround spots occur at the same time as the center spots (markers)
 - When time delay mode is changed to 15 msec the delayed surround spots move to the left with respect to the centre mark spots.
 - When time delay mode is changed to 25 msec or 30 msec the delayed surround spots move to the right with respect to the center spots.
 - In case of no time delay ! (faulty condition) the surround spots fall just between 2 center markers spots (20 msec)
- **How to check with a double beam scope**
WARNING: Be sure that the ground connection (-) of each instrument is not connected with the safety earth ⊥ connection. To avoid damage to output amplifiers (balance type) Use only cinch (input) ground connection

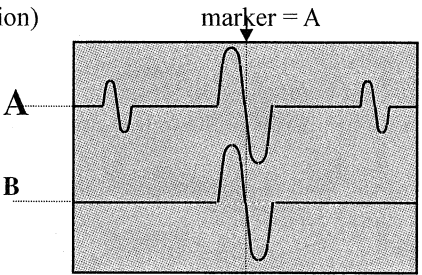
- Select Pro Logic size “LARGE” or “SMALL” (phantom in case of no Center output.)
- Select 20 msec time delay in Surround channel.
- Adjust scope at 5 msec/division and trigger at A input
- Connect input A to Center channel (or L or R in case of phantom mode)
- Connect input B to Surround channel
- Adjust trigger level and the X position to set pulse A in the middle of the scope . see fig.2 (if L or R used in phantom mode choose the largest (amplitude) pulse. see fig 3

Select track 24:
Pulse A = 20 msec marker
Pulse B = delayed surround signal pulse



20msec time delay

Fig 2



20msec in case of phantom mode

Fig 3

Change time delay to 15 msec (only in versions with variable delay).
 he surround pulse in channel B moves to the left with respect to side from center marker (channel A) position.
 Change time delay to 25 or 30 msec (versions with variable delay).
 The surround pulse in channel B moves to the right with respect to center marker (channel A) position.

Time delay with track 6

Alternative methode :

The functional operation of the time delay can be made visible with a lisajous figure, with an single beam scope.

Connect X-direction on Surround output

Connect Y-direction on Left or Right output/input.

Note : be careful and use only 1 ground connected to scope.

Select track 6 (surround test) :

Make the lisajous figure visible on the scope (amplitude adjust) see fig. 4

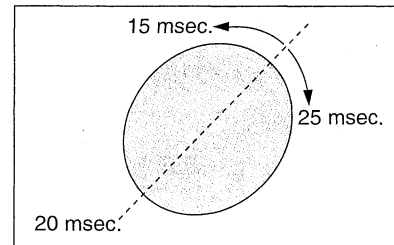


Fig 4

Lisajous out of phase
 Time delay = OK

Note : in sets with variable time delay the ellipse of the lisajous figure must be always open. Changing the time delay changes the direction of the circle accordingly.

CHANNEL modes:

Surround OFF (Stereo) 2 channel mode

Signal on : L out (2703) and R out (2704)

Surround ON

-Prologic 4 channel mode → all four outputs are used

Signal on : L out (2703), R out (2704), Center out (2705), Surround (2706).

-Front 3 stereo → No surround speaker available

The surround information is equelly to the left and right outputs.

Signal on : L out (2703), R out (2704), Center out (2705).

-HALL

Signal on : L out (2703), R out (2704), Surround (2706).

Subwoufer out. not in all versions

Signal on : Subwoofer out (2788).

(....) as indicated on the component side of the DPL decoder board.

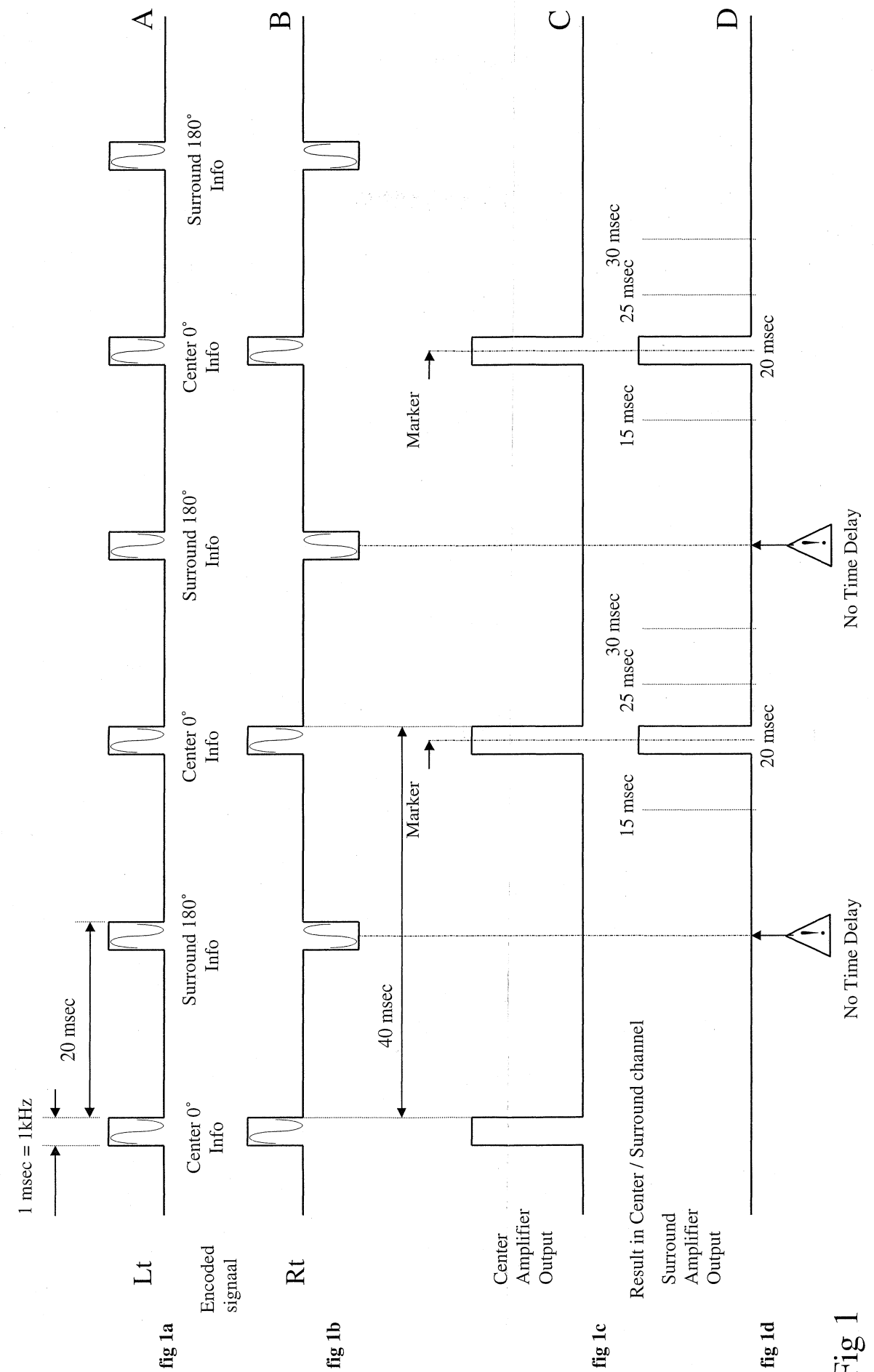
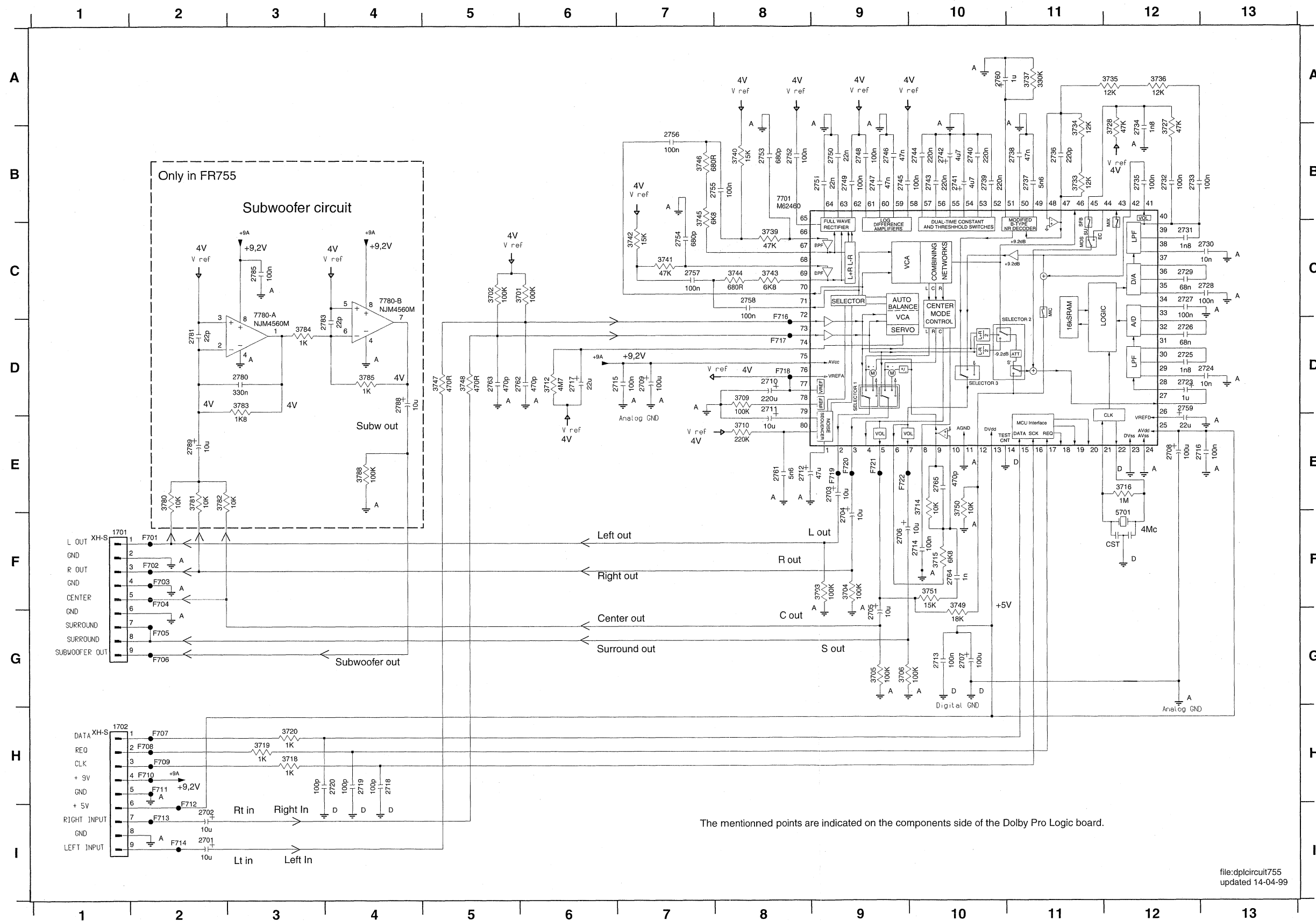


Fig 1

DOLBY PROLOGIC - CIRCUIT DIAGRAM



The mentioned points are indicated on the components side of the Dolby Pro Logic board.

file: dplcircuit755
updated 14-04-99

[illegible]

ELECTRICAL PARTSLIST - DOLBY PROLOGIC BOARD**MISCELLANEOUS**

1003 4822 214 13051 DPL MODULE

CAPACITORS

2701	4822 124 41579	10UF 20%	50V
2702	4822 124 41579	10UF 20%	50V
2703	4822 124 41579	10UF 20%	50V
2704	4822 124 41579	10UF 20%	50V
2705	4822 124 41579	10UF 20%	50V
2706	4822 124 41579	10UF 20%	50V
2707	4822 124 41584	100UF 20%	10V
2708	4822 124 41584	100UF 20%	10V
2709	4822 124 41584	100UF 20%	10V
2710	4822 124 11912	220UF 20%	6,3V
2711	4822 124 41579	10UF 20%	50V
2712	4822 124 40433	47UF20%	25V
2713	4822 126 13196	100NF 10%	0805 X7R 2
2714	5322 121 42386	100NF 5%	63V
2715	4822 126 13196	100NF 10%	0805 X7R 2
2716	4822 126 13196	100NF 10%	0805 X7R 2
2717	4822 124 81151	22UF	50V
2718	5322 122 32531	100PF 5%NPO	50V
2719	5322 122 32531	100PF 5%NPO	50V
2720	5322 122 32531	100PF 5%NPO	50V
2723	4822 124 40242	1UF20%	63V
2724	4822 122 33177	10NF 20%	X7R 50V
2725	4822 126 10847	1,8NF10%	X7R 63V
2726	5322 121 42465	68NF 5%	63V
2727	5322 121 42386	100NF 5%	63V
2728	5322 121 42386	100NF 5%	63V
2729	5322 121 42465	68NF 5%	63V
2730	4822 122 33177	10NF 20%	X7R 50V
2731	4822 126 10847	1,8NF10%	X7R 63V
2732	4822 126 13196	100NF 10%	0805 X7R 2
2733	5322 121 42386	100NF 5%	63V
2734	4822 126 10847	1,8NF10%	X7R 63V
2735	4822 126 13196	100NF 10%	0805 X7R 2
2736	4822 122 33575	220PF 5%NPO	50V
2737	4822 122 32646	5,6NF10%	X7R 50V
2738	4822 122 33797	47NF20%Y5V	50V
2739	4822 121 42408	220NF 5%	63V
2740	4822 121 42408	220NF 5%	63V
2741	4822 124 40769	4,7UF20%	100V
2742	4822 124 40769	4,7UF20%	100V
2743	4822 121 42408	220NF 5%	63V
2744	4822 121 42408	220NF 5%	63V
2745	4822 126 13196	100NF 10%	0805 X7R 2
2746	4822 121 43526	47NF 5%	250V
2747	4822 121 43526	47NF 5%	250V
2748	5322 121 42386	100NF 5%	63V
2749	4822 126 13196	100NF 10%	0805 X7R 2
2750	5322 122 32654	22NF10%	X7R 63V
2751	5322 122 32654	22NF10%	X7R 63V
2752	4822 126 13196	100NF 10%	0805 X7R 2
2753	4822 122 32535	680PF10%	X7R 63V
2754	5322 126 10184	680P 5% NPO	50V.
2755	5322 121 42386	100NF 5%	63V
2756	5322 121 42386	100NF 5%	63V
2757	5322 121 42386	100NF 5%	63V
2758	5322 121 42386	100NF 5%	63V
2759	4822 124 81151	22UF	50V
2760	4822 124 40242	1UF20%	63V
2761	4822 122 32646	5,6NF10%	X7R 50V
2762	5322 122 32268	470PF 10%	50V

2763	5322 122 32268	470PF 10%	50V
2764	5322 122 34123	1NF	50V
2765	5322 122 32268	470PF	50V
2780	5322 121 42661	330NF 5%	63V
2781	5322 122 32658	22PF 5%	50V
2783	5322 122 32658	22PF 5%	50V
2785	4822 126 13196	100NF 10%	0805 X7R 2
2788	4822 124 41579	10UF 20%	50V
2789	4822 124 41579	10UF 20%	50V

RESISTORS

3701	4822 051 20104	100K00	5%	0,1W
3702	4822 051 20104	100K00	5%	0,1W
3703	4822 051 20104	100K00	5%	0,1W
3704	4822 051 20104	100K00	5%	0,1W
3705	4822 051 20104	100K00	5%	0,1W
3706	4822 051 20104	100K00	5%	0,1W
3709	4822 051 20104	100K00	5%	0,1W
3710	4822 117 13579	220K 1%	0.1W	RC12H 0
3712	4822 051 20475	4M70	5%	0,1W
3714	4822 117 10833	10K	1%	0,1W
3715	4822 117 11507	6K8	1%	0,1W
3716	4822 051 20105	1M00	5%	0,1W
3718	4822 051 10102	1K00	2%	0,25W
3719	4822 051 10102	1K00	2%	0,25W
3720	4822 051 10102	1K00	2%	0,25W
3727	4822 117 10834	47K	1%	0,1W
3728	4822 117 10834	47K	1%	0,1W
3733	4822 117 11383	12K	1%	0,1W
3734	4822 117 11383	12K	1%	0,1W
3735	4822 117 11383	12K	1%	0,1W
3736	4822 117 11383	12K	1%	0,1W
3737	4822 051 20334	330K00	5%	0,1W
3739	4822 117 10834	47K	1%	0,1W
3740	4822 051 20153	15K00	5%	0,1W
3741	4822 117 10834	47K	1%	0,1W
3742	4822 051 20153	15K00	5%	0,1W
3743	4822 117 11507	6K8	1%	0,1W
3744	4822 051 20681	680R00	5%	0,1W
3745	4822 117 11507	6K8	1%	0,1W
3746	4822 051 20681	680R00	5%	0,1W
3747	4822 051 20471	470R00	5%	0,1W
3748	4822 051 20471	470R00	5%	0,1W
3749	4822 117 10965	18k	1%	0,1W
3750	4822 117 10833	10k	1%	0,1W
3751	4822 051 20153	15k	1%	0,1W
3780	4822 117 10833	10K	1%	0,1W
3781	4822 117 10833	10K	1%	0,1W
3782	4822 117 10833	10K	1%	0,1W
3783	4822 051 20182	1K80	5%	0,1W
3784	4822 051 10102	1K00	2%	0,25W
3785	4822 051 10102	1K00	2%	0,25W
3788	4822 051 20104	100K00	5%	0,1W

JUMPERS

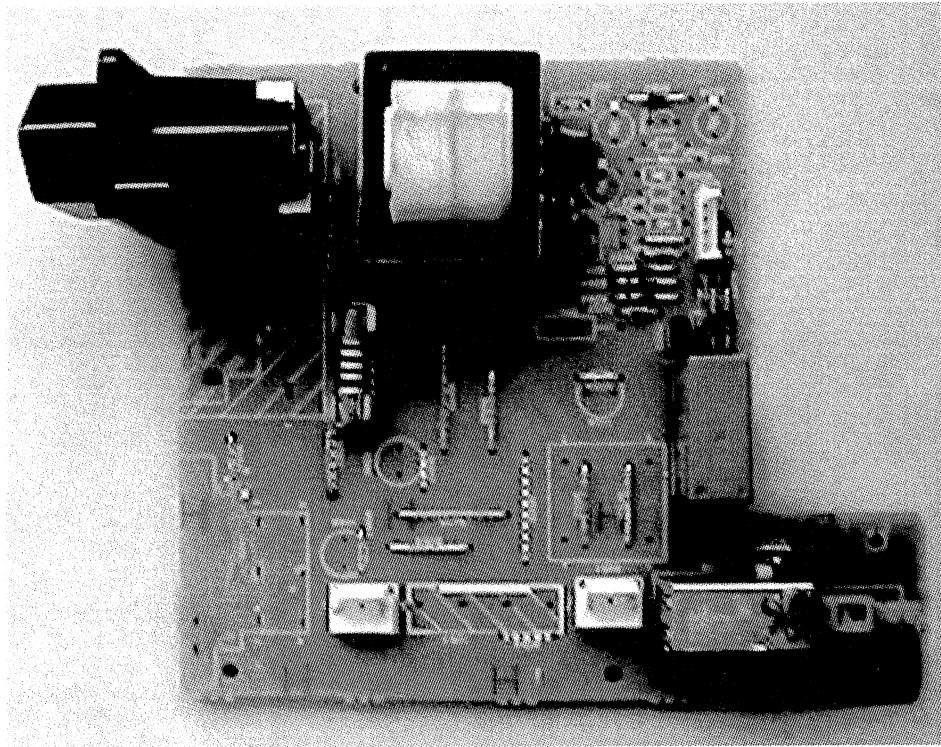
4701	4822 051 20008	0R00 JUMP. (0805)
to		
4720	4822 051 20008	0R00 JUMP. (0805)

FILTERS

5701	4822 242 72527	CST4,00MGW-TF01
------	----------------	-----------------

ICs

7701	4822 209 17347	M62460FP
7780	4822 209 83357	NJM4560M JRC

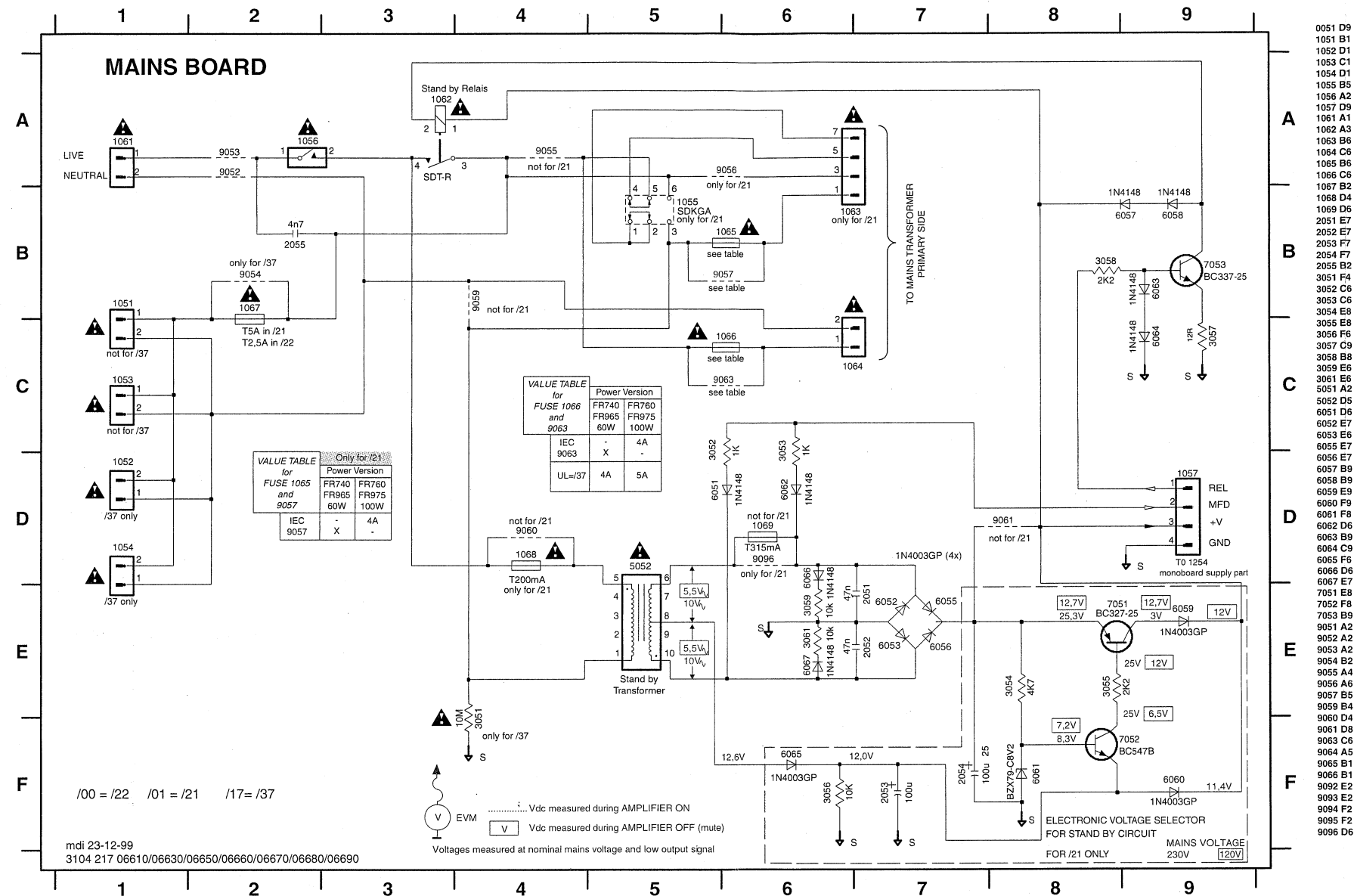


MAINS BOARD

TABLE OF CONTENTS

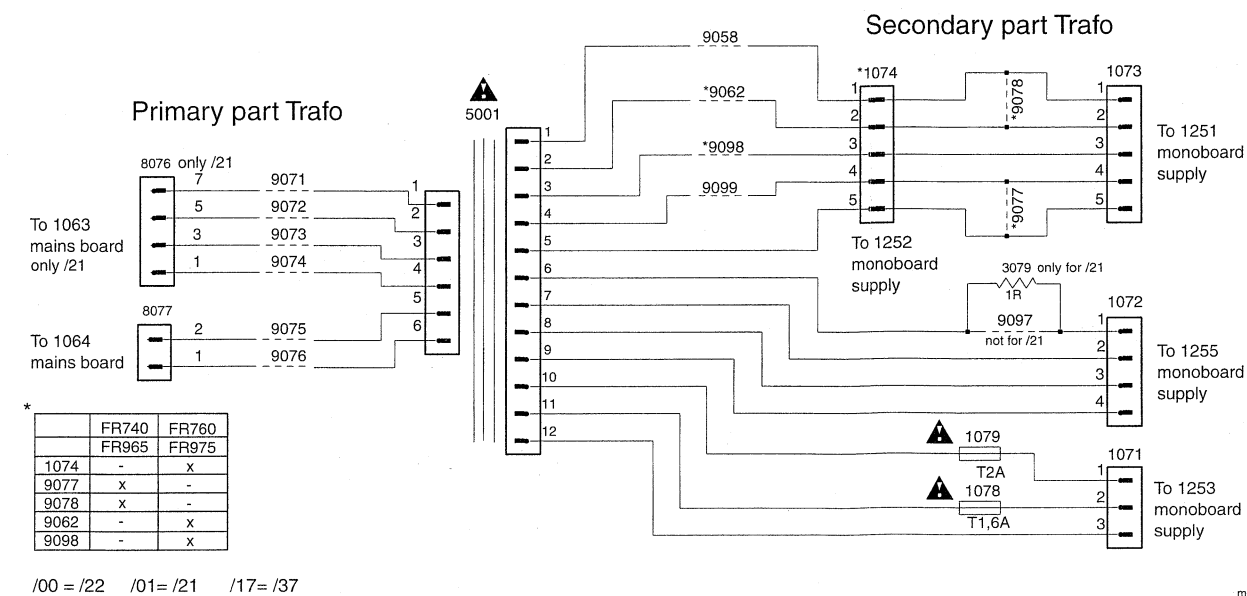
Circuit diagram	9-2
Component layout	9-3
Partslist	9-5

MAINS BOARD - CIRCUIT DIAGRAM

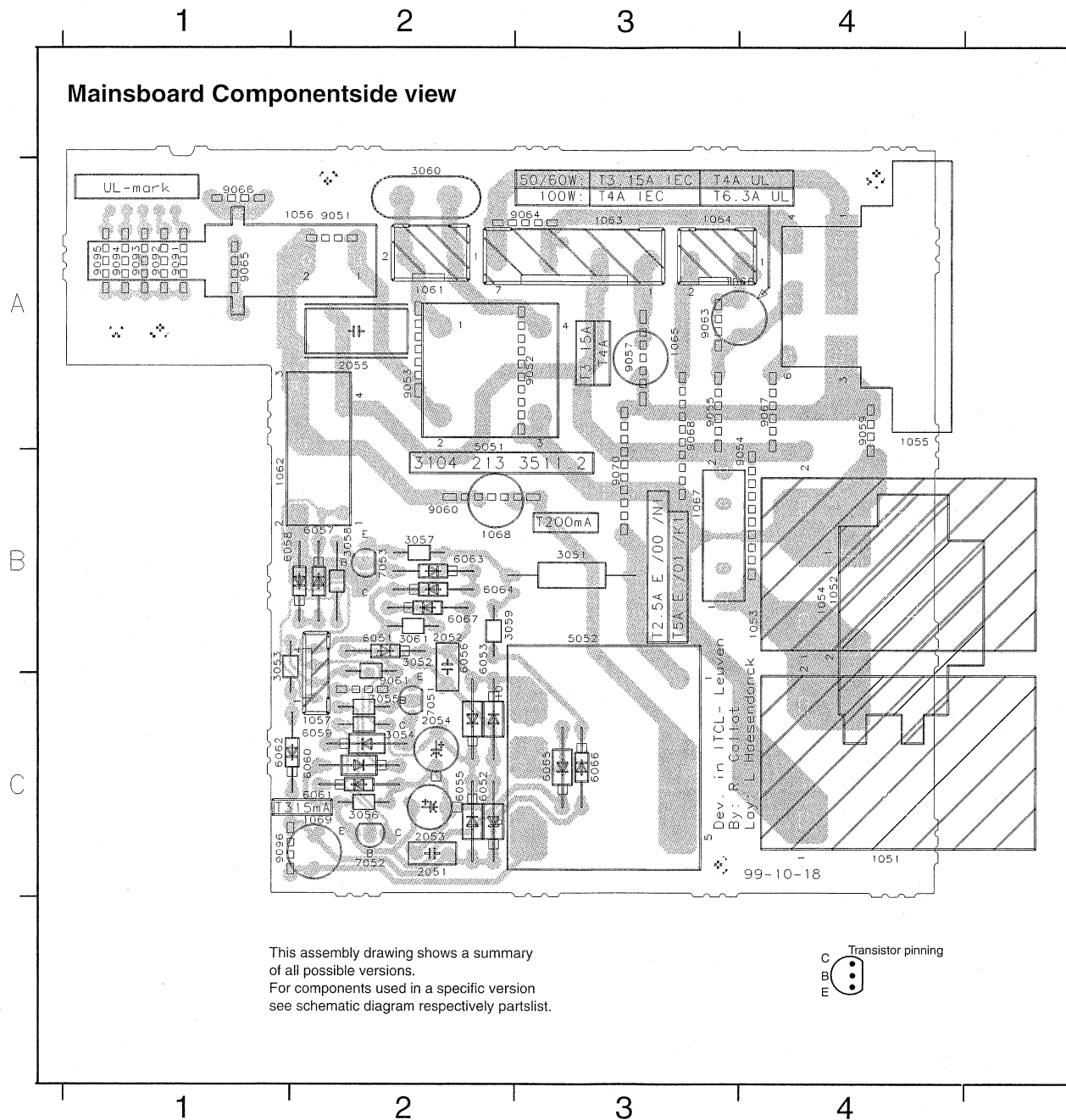


9051 D9
1051 B1
1052 D1
1053 C1
1054 D1
1055 B5
1056 A2
1057 D9
1061 A1
1062 A3
1063 B6
1064 C6
1065 B6
1066 C6
1067 B2
1068 D4
1069 D6
2051 E7
2052 E7
2053 F7
2054 F7
2055 B2
3051 F4
3052 C6
3053 C6
3054 E8
3055 E8
3056 F6
3057 C9
3058 B8
3059 E6
3061 E6
5051 A2
5052 D5
6051 D6
6052 E7
6053 E6
6055 E7
6056 E7
6057 B9
6058 B9
6059 E9
6060 F9
6061 F8
6062 D6
6063 B9
6064 C9
6065 F6
6066 D6
6067 E7
7051 E8
7052 F8
7053 B9
9051 A2
9052 A2
9053 A2
9054 B2
9055 A4
9056 A6
9057 B5
9059 B4
9060 D4
9061 D8
9063 C6
9064 A5
9065 B1
9066 B1
9092 E2
9093 E2
9094 F2
9095 F2
9096 D6

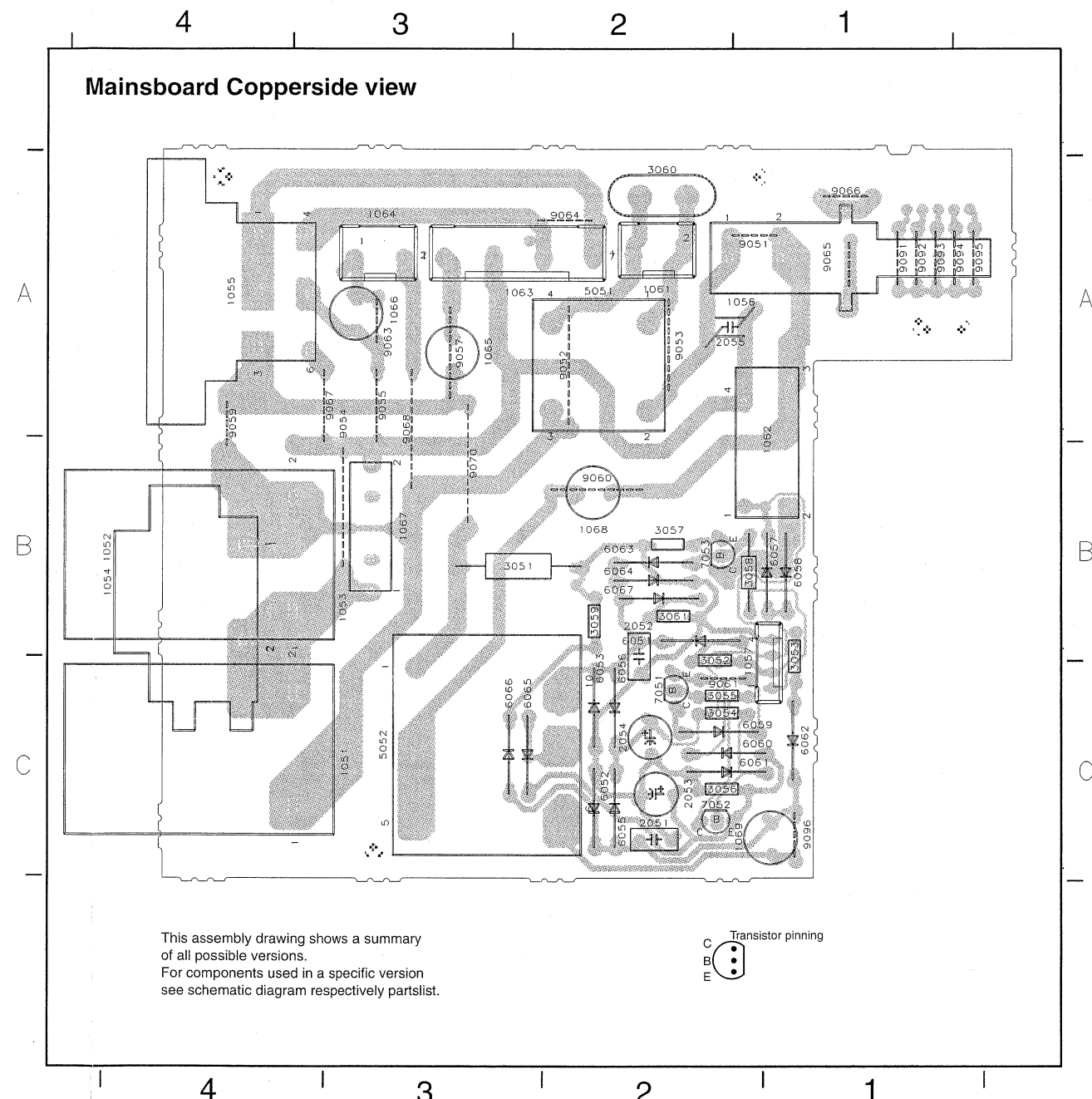
MAINS TRAF0 PART



MAINS BOARD - COMPONENTSIDE VIEW & COPPERSIDE VIEW



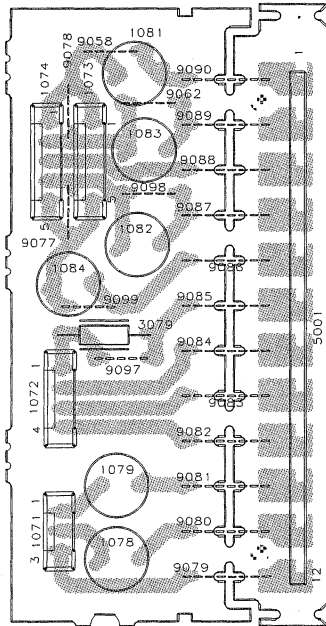
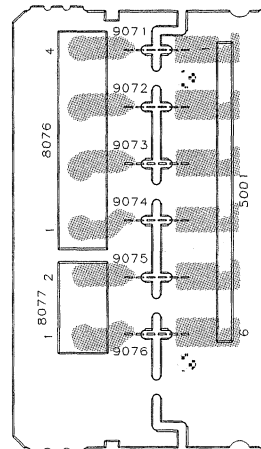
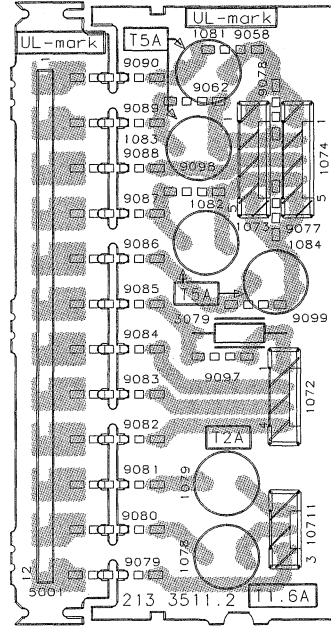
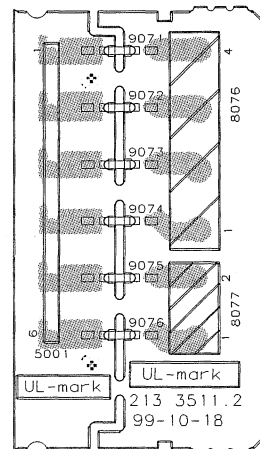
1051 C4
1052 B4
1053 B4
1054 B4
1055 A4
1056 A2
1057 C2
1061 A2
1062 A2
1063 A3
1064 A3
1065 A3
1066 A3
1067 B3
1068 B2
1069 C2
1070 C2
1071 C2
1072 C2
1073 C2
1074 C2
1075 C2
1076 C2
1077 C2
1078 C2
1079 C2
1080 C2
1081 C2
1082 C2
1083 C2
1084 C2
1085 C2
1086 C2
1087 C2
1088 C2
1089 C2
1090 C2
1091 C2
1092 C2
1093 C2
1094 C2
1095 C2
1096 C2



TRAFO BOARD

Copperside view

Componentside view

Interconnection Board
Transformer secondaryInterconnection Board
Transformer secondaryInterconnection Board
Transformer primaryInterconnection Board
Transformer primary

ELECTRICAL PARTSLIST - MAINS BOARD**MISCELLANEOUS**

1051	▲	482226731994	MAINS OUTLET
1056	▲	482227613224	MAINS SWITCH
1061	▲	482226520723	MAINS INLET
1062		482228010391	RELAY
1064	▲	482226520723	B2P3-VH

1067	▲	242208610912	FUSE 2,5A
1069	▲	482207153151	FUSE 315MA
1078	▲	482207151602	FUSE 1.6A
1079	▲	482207152002	FUSE 2A

CAPACITORS

2051		482212143526	47NF 5%	250V
2052		482212143526	47NF 5%	250V
2055	▲	482212614084	4,7NF 20%	250V

RESISTORS

3052		482205011002	1K00	1%	0,4W
3053		482205011002	1K00	1%	0,4W
3057		482205210129	12R00	5%	0,33W
3058		482211652256	2K2	5%	0,5W
3059		482205021003	10K00	1%	0,6W
3061		482205021003	10K00	1%	0,6W

TRAFO

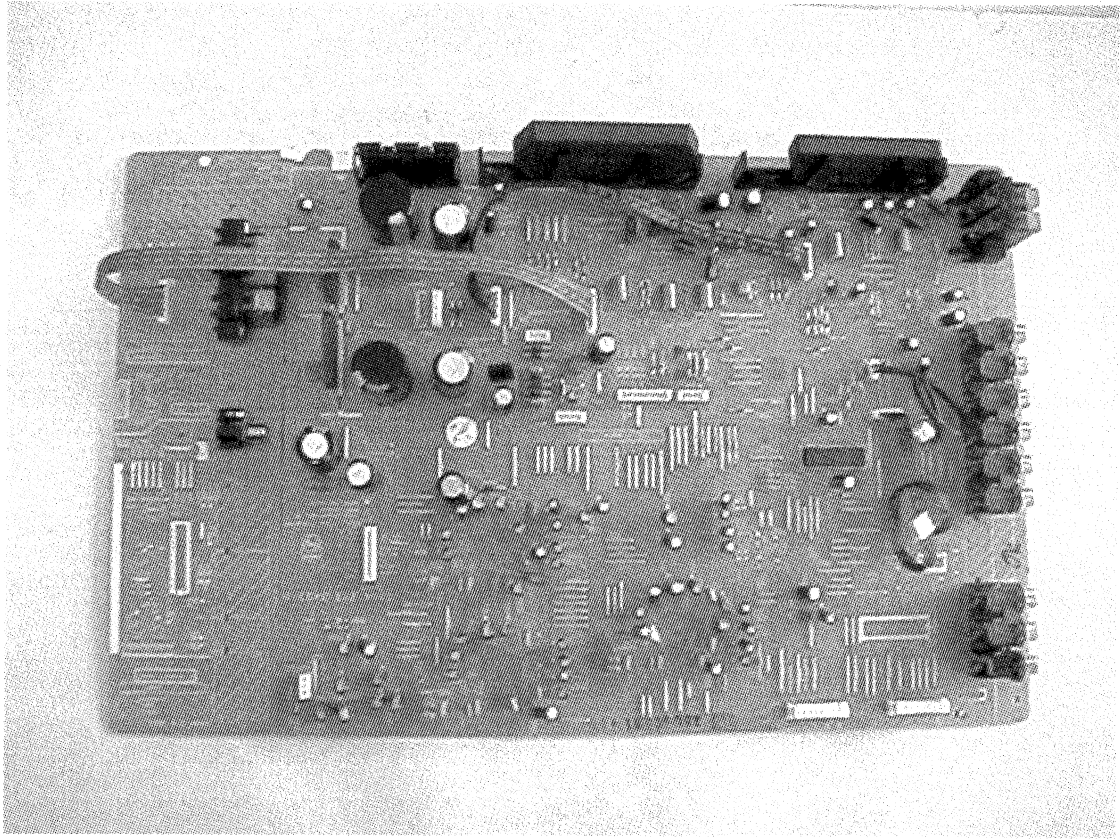
5052	▲	482214611143	STBY TRAFO
------	---	--------------	------------

DIODES

6051		482213030621	1N4148
6052		482213031878	1N4003G
6053		482213031878	1N4003G
6055		482213031878	1N4003G
6056		482213031878	1N4003G
6057		482213030621	1N4148
6058		482213030621	1N4148
6062		482213030621	1N4148
6063		482213030621	1N4148
6064		482213030621	1N4148
6066		482213030621	1N4148
6067		482213030621	1N4148

TRANSISTORS

7053		482213040981	BC337-25
------	--	--------------	----------



MONO2 BOARD

TABLE OF CONTENTS

Measurement hint	10-2
P50/Speaker/Video Selector layout	10-3
Circuit diagram Source selector	10-4
Circuit diagram Volume controle	10-5
Circuit diagram Supply	10-6
Circuit diagram Amplifier	10-7
Component layout	10-8
Mappings Components & Chips side.....	10-9
Component layout copper side view	10-10

MEASUREMENT REFERENCES TO LAYOUT ON PAGE 10-8

IC7641

IC 7641 Pin	Can be measure via Test point on component side monoboard		Functionality
16	TP 1		Left in
17	TP 2		Dpl Left in
18	TP 3		Front Left in
8	TP 4		Right in
9	TP 5		Dpl Right in
10	TP 6		Front Right in
3	TP 7		4,7V
2	TP 8		4,7V
4	TP 9		4,7V
26	TP 10		4,7V
27	TP 11		4,7V
33	TP 12		Right out
36/40/43		TP 13	Ground
41/42	TP 14		9,4V
39	TP 15		4,7V
19	TP 16		8,7V
34	TP 18		Left out
25	TP 19		4,7V
24	TP 20		4,7V
12	TP 21		4,7V
20	TP 22		4,7V
21	TP 23		4,7V

IC7643

IC 7643 Pin	Can be measure via Test point on component side monoboard		Functionality
17	TP 47		DPL Surround L in
18	TP 48		6 CH Surround L in
9	TP 50		DPL Surround R in
10	TP 51		6 CH Surround R in
3	TP 52		4,7V
2	TP 53		4,7V
4	TP 54		4,7V
26	TP 55		4,7V
27	TP 56		4,7V
33	TP 57		Surround Right out
36/40/43		TP 58	Ground
41/42		TP 59	9,4V
39	TP 60		4,7V
19	TP 61		8,7V
34	TP 63		Surround Left out
25	TP 64		4,7V
24	TP 65		4,7V
12	TP 66		4,7V
20	TP 67		4,7V
21	TP 68		4,7V

IC7642

IC 7642 Pin	Can be measure via Test point on component side monoboard		Functionality
16	TP 24		not used
17	TP 25		Dpl Center in
18	TP 26		6 CH Center in
8	TP 27		Subwoofer in
9	TP 28		Subwoofer in
10	TP 29		6 CH Subwoofer in
3	TP 30		4,7V
2	TP 31		4,7V
4	TP 32		4,7V
26	TP 33		4,7V
27	TP 34		4,7V
33	TP 35		Subwoofer L out
36/43	TP 36		Ground
40/41/42	TP 37		9,4V
39	TP 38		4,7V
19	TP 39		8,7V
34	TP 40		Center out
25	TP 41		4,7V
24	TP 42		4,7V
12	TP 43		4,7V
20	TP 44		4,7V
21	TP 45		4,7V

Tr 7621

Tr7621	Can be measure via Test point on component side monoboard	Funtionality
B	TP 96	-1,5V
C	TP 97	Ground
E	TP 98	Headphone Amp L out

Tr 7622

Tr7622	Can be measure via Test point on component side monoboard	Funtionality
B	TP 99	-0,5V
C	TP 100	Ground
E	TP 101	Headphone Amp R out

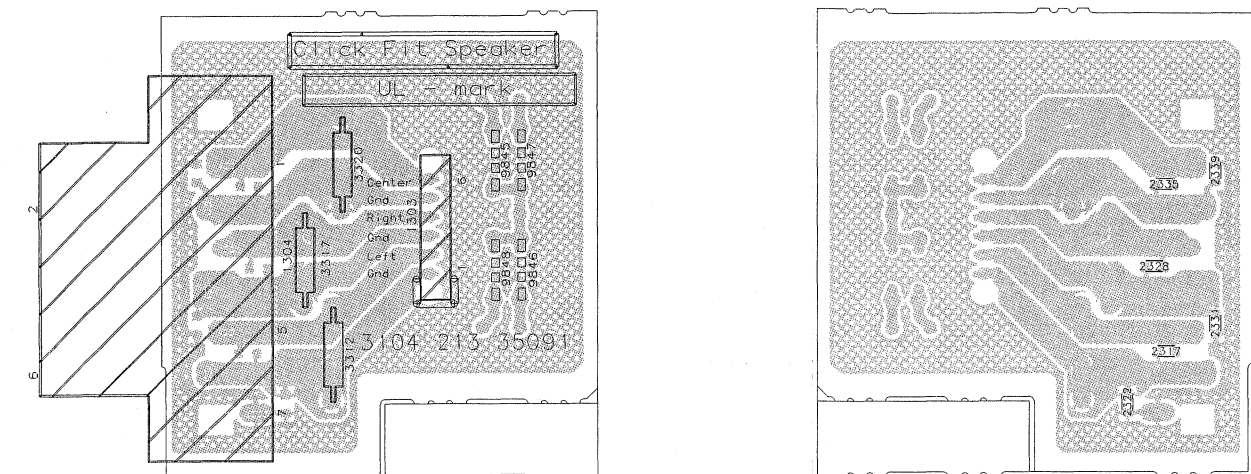
Tr 7658

Tr7658	Can be measure via Test point on component side monoboard	Functionality
B	TP 83	5V
C	TP 84	-13V
E	TP 85	5V

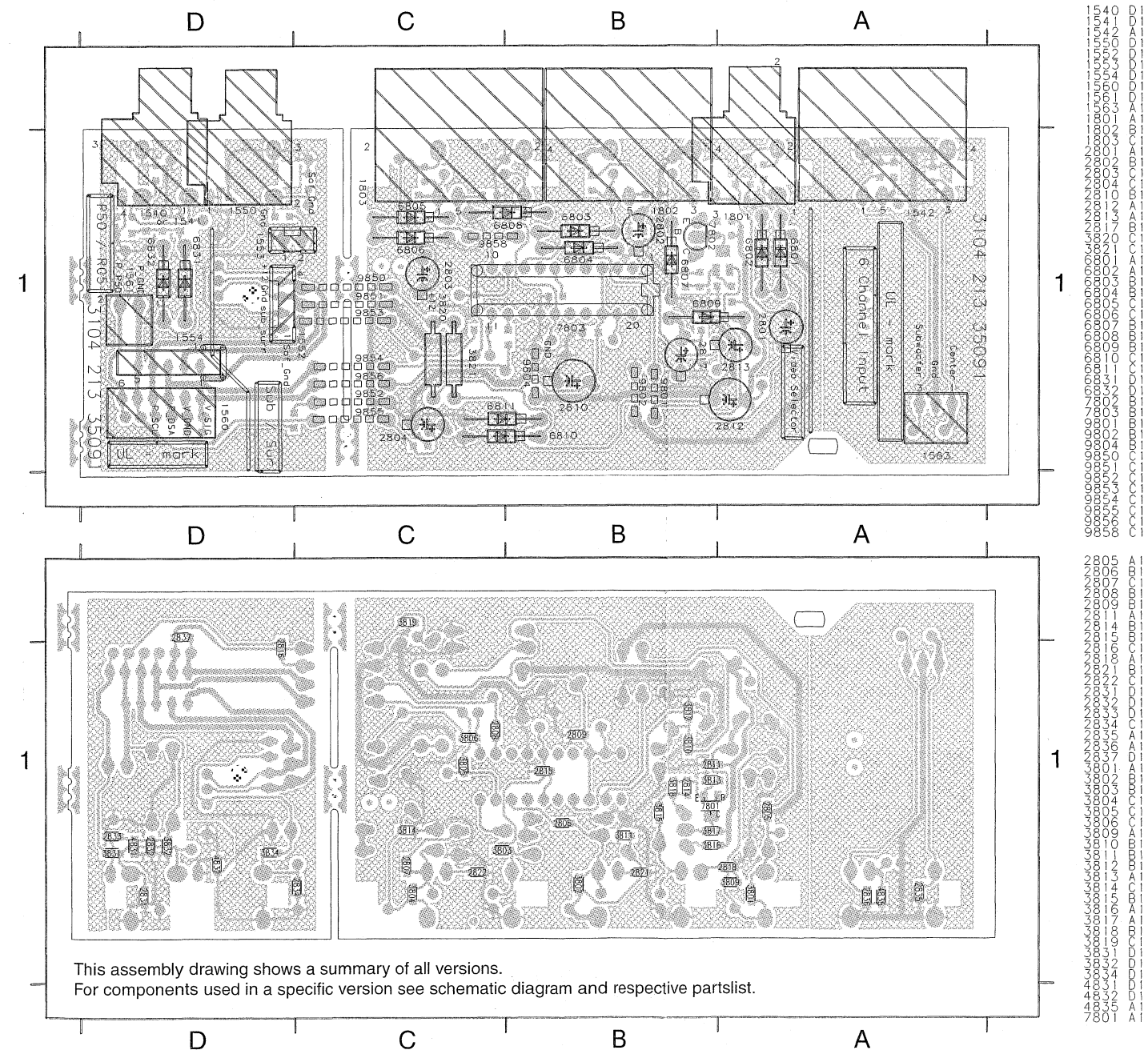
IC7601

IC 7601 Pin	Can be measure via Test point on component side monoboard	Functionality
5	TP 69	Headphone Amp L in
4	TP 70	-13,5V
8	TP 71	12V
3	TP 72	Headphone Amp R in

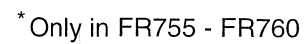
CLICK FIT SPEAKER BOARD - COMPONENT VIEW & COPPER SIDE VIEW



P50/RC5 VIDEO SELECTOR BOARD - COMPONENT VIEW & COPPER SIDE VIEW

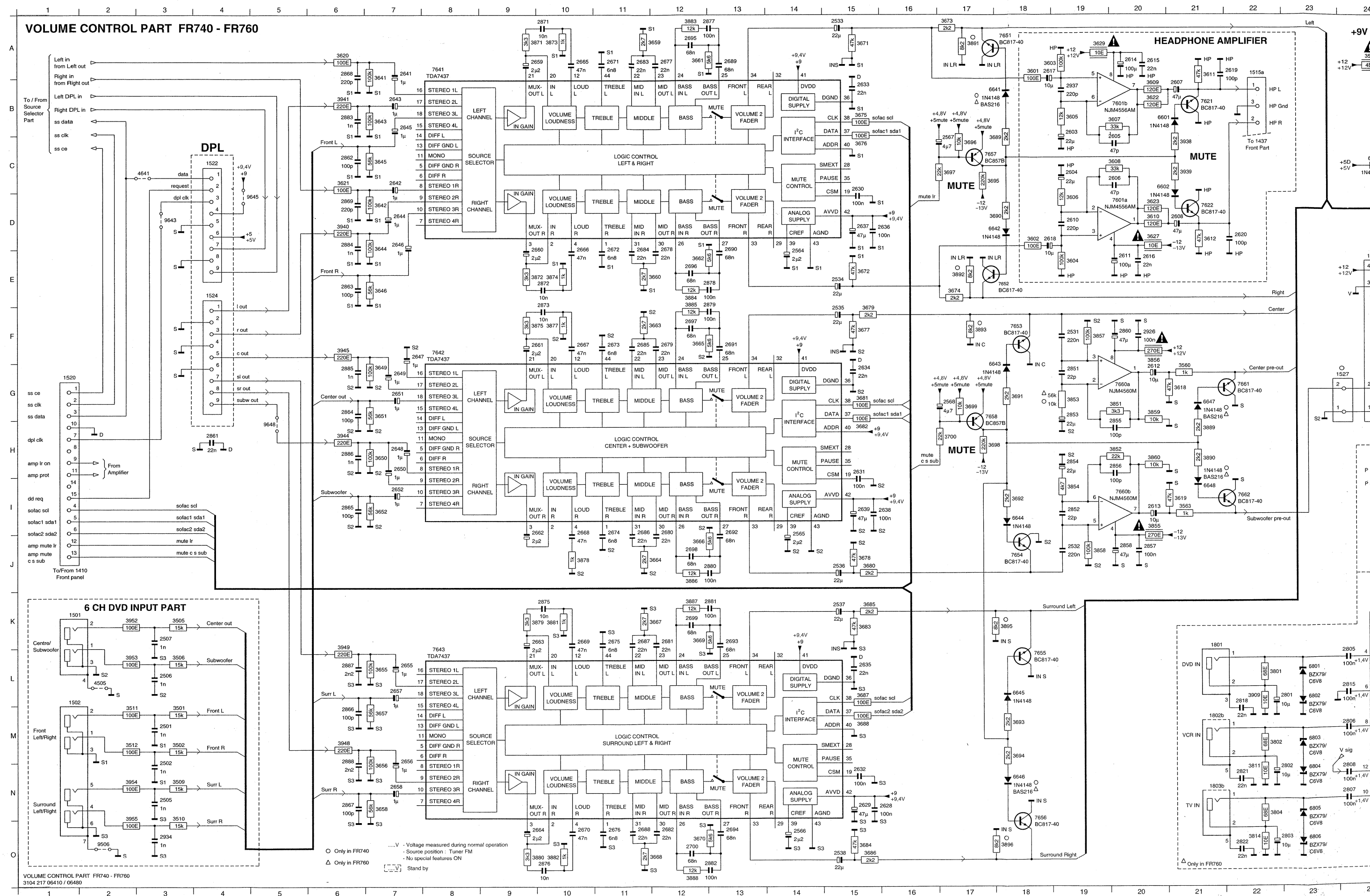


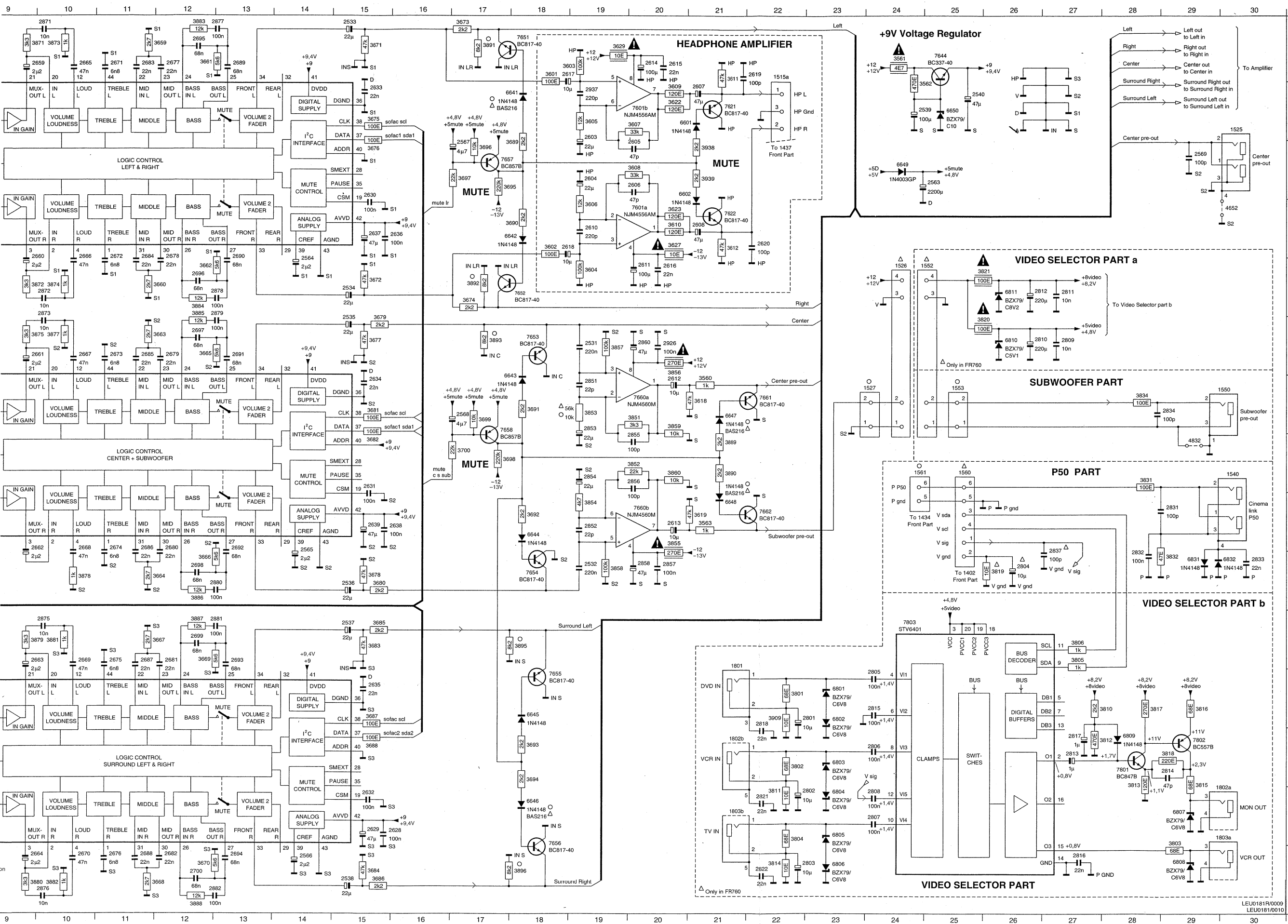
SOURCE SELECTOR PART FR735 - FR740 - FR755 - FR760
3104 217 05800 / 05940 / 05960 / 06410 / 06480



- V - Voltage measured during normal operation
- Source position : Tuner FM
- No special features ON

LEU0176/0009
LEU0176R/0009





1501	K1	2695	A12	3667	K11	6806	O23
1502	L1	2696	E12	3668	O11	6807	N29
1515	A22	2697	J12	3669	K12	6808	C29
1520	C1	2698	J1	3670	O12	6809	M28
1522	C4	2699	K12	3671	A15	6810	F26
1524	E4	2700	O12	3672	E15	6811	E26
1525	B30	2801	L22	3673	A17	6812	J29
1526	E24	2802	N22	3674	E17	6813	J30
1527	G23	2803	O22	3675	B15	7601a	B20
1540	H30	2804	J26	3676	C15	7601b	B20
1550	G29	2805	L24	3677	F15	7621	B21
1552	E24	2806	M24	3678	J15	7622	D21
1553	G25	2807	N24	3679	F15	7641	A8
1560	H25	2808	N24	3680	J15	7642	F8
1561	H24	2809	F27	3681	G15	7643	L8
1801	K21	2810	F26	3682	H15	7644	A25
1802a	N29	2811	E27	3683	K15	7651	A18
1802b	M21	2812	E26	3684	O15	7652	E18
1803a	N29	2813	M27	3685	K15	7653	F18
1803b	N21	2814	M29	3686	O15	7654	J18
2501	M3	2815	L24	3687	L15	7655	L18
2502	N3	2816	O27	3688	M15	7656	O18
2505	N3	2817	M27	3689	C17	7657	C17
2506	L3	2818	L22	3690	D17	7658	G17
2507	K3	2821	N22	3691	G18	7660a	G20
2531	F19	2822	O22	3692	I18	7660b	I20
2532	J19	2831	I29	3693	M18	7661	G22
2533	A15	2832	J28	3694	M18	7662	I22
2534	E15	2833	J30	3695	C17	7801	M28
2535	F15	2834	G29	3696	C17	7802	M28
2536	J15	2837	J27	3697	C17	7803	K24
2537	K15	2851	G19	3698	H17	7806	O2
2538	O15	2852	I19	3699	G17	7807	O2
2539	B24	2853	G19	3700	H17	7808	O4
2540	B25	2854	H19	3801	L22	7809	H5
2563	C25	2855	H19	3802	M22		
2564	E14	2856	H19	3803	N29		
2565	J14	2857	J20	3804	N22		
2566	O14	2858	J20	3805	K27		
2567	C17	2860	F20	3806	K27		
2568	O17	2861	H4	3810	L27		
2569	C29	2862	C6	3811	N22		
2603	B19	2863	E6	3812	M27		
2604	C19	2864	G6	3813	N28		
2605	C19	2865	I6	3814	O22		
2606	C19	2866	M6	3815	N29		
2607	B21	2867	N6	3816	L29		
2608	D21	2868	A6	3817	L28		
2610	D19	2869	D6	3818	M29		
2611	E20	2871	A10	3819	J26		
2612	G20	2872	E10	3820	F25		
2613	I20	2873	E10	3821	E25		
2614	A20	2875	K10	3831	H28		
2615	A20	2876	O10	3832	J29		
2616	E20	2877	A12	3834	G28		
2617	A18	2878	E12	3851	G19		
2618	D18	2879	E12	3852	H19		
2619	A22	2880	J12	3853	G19		
2620	D22	2881	K12	3854	I19		
2628	N15	2882	O12	3855	I20		
2629	N15	2883	B6	3856	F20		
2630	C15	2884	D6	3857	F19		
2631	H15	2885	G6	3858	J19		
2632	N15	2886	H6	3859	G20		
2633	B15	2887	L6	3860	H20		
2634	G15	2888	M6	3871	A9		
2635	L15	2828	F20	3872	E9		
2636	D15	2934	O3	3873	A10		
2637	D15	2937	B19	3874	E10		
2638	I15	3501	M3	3875	F9		
2641	A7	3505	K3	3878	J10		
2642	C7	3506	L3	3879	K9		
2643	B7	3509	N3	3880	O9		
2644	D7	3510	N3	3881	K10		
2645	B7	3511	M2	3882	O10		
2646	D7	3512	M2	3883	A12		
2647	F7	3560	G21	3884	E12		
2648	H7	3561	A24	3885	E12		
2649	G7	3562	B24	3886	J12		
2650	H7	3563	I21	3887	K12		
2651	G7	3601	A18	3888	O12		
2652	I7	3602	D18	3889	H21		
2655	L7	3603	A18	3890	H21		
2656	M7	3604	E19	3891	A17		
2657	L7	3605	B19	3892	E17		
2658	N7	3606	D19	3893	F17		
2659	A9	3607	B19	3895	K18		
2660	E9	3608	C19	3896	O18		
2661	F9	3609	B20	3909	L22		
2662	I9	3610	D20	3938	C21		
2663	K9	3611	A21	3939	C21		
2664	O9	3612	D21	3940	D6		
2665	A10	3618	G21	3941	B6		
2666	E10	3619	I21	3944	H6		
2667	F10	3620	A6	3945	F6		
2668	I10	3621	C6	3948	M6		
2669	K10	3622	B20	3949	K6		
2670	O10	3623	D20	3952	K2		
2671	A11	3627	D20	3953	L2		
2672	E11	3629	A19	3954	N2		
2673	F11	3641	B7	3955	N2		
2674	I11	3642	D7	4505	L2		
2675	K11	3643	B7	4641	C3		
2676	O11	3644	E7	4652	D30		
2677	A12	3645	C7	4652	H29		
2678	E12	3646	E7	4653	B20		
2679	F12	3649	G7	6602	C20		
2680	I12	3650	H7	6641	B17		
2681	K12	3651	G7	6642	D17		
2682	O12	3652	I7	6643	G17		
2683	A11	3655	L7	6644	I18		
2684	E11	3656	N7	6645	L18		
2685	F11	3657	M7	6646	N18		
2686	I11	3658	N7	6647	G21		
2687	K11	3659	A11	6648	E21		
2688	O11	3660	E11	6649	C24		
2689	A13	3661	A12	6650	B25		
2690	E13	3662	E12	6801	L23		
2691	F13	3663	F11	6802	L23		
2692	I13	3664	J11	6803	M23		
2693	K13	3665	F12	6804	N23		
2694	O13	3666	J12	6805	N23		

MONOBOARD SUPPLY FR760

The schematic diagram illustrates the power supply circuitry for the MONOBOARD SUPPLY FR760. It includes several key sections:

- Main Transformer Connections:** The top left shows connections for mains transformer taps 1 through 5, labeled "To 1073/1074 Mains trafo".
- +VL / +52V Section:** Features a bridge rectifier (6251 D5SBA20) followed by a filter capacitor (2254 100nF). The output is regulated to +VL (+52V) using a Zener diode (2260 4700μF).
- VL / -52V Section:** Similar to the positive rail, it uses a bridge rectifier (6253 D5SBA20) and a filter capacitor (2256 47nF), regulated to -VL (-52V) with a Zener diode (2262 4700μF).
- 30V CIRCUIT:** A dedicated section for generating -30V, utilizing transistors BC327-25 (7257, 7258), resistors (3268, 3269, 3k3), and diodes BZX79/C15 (6280, 6281). It also includes a Zener diode BZT9/C15 (6276) and capacitors (3266, 3270, 47μF).
- +12V Section:** Employs a 7910 BD242BFP voltage regulator, preceded by a resistor network (3291, 2281, 100nF) and a reference voltage source (REF).
- +5V Section:** Uses a 7805 L7805 voltage regulator, preceded by a resistor network (3275, 2276, 100nF) and a reference voltage source (REF).
- Power Down Circuit:** Located at the bottom, it controls the power down state using a relay (Relay +3.6V) and a transistor (7253 BC847B) driven by a microcontroller pin (MFD 0V).
- Output Connectors:** On the right side, there are two sets of connectors: one for "To Left & Right & Center Amplifier" (pins 1-8) and another for "To 1003 Surround amplifier" (pins 1-8).

Legend:

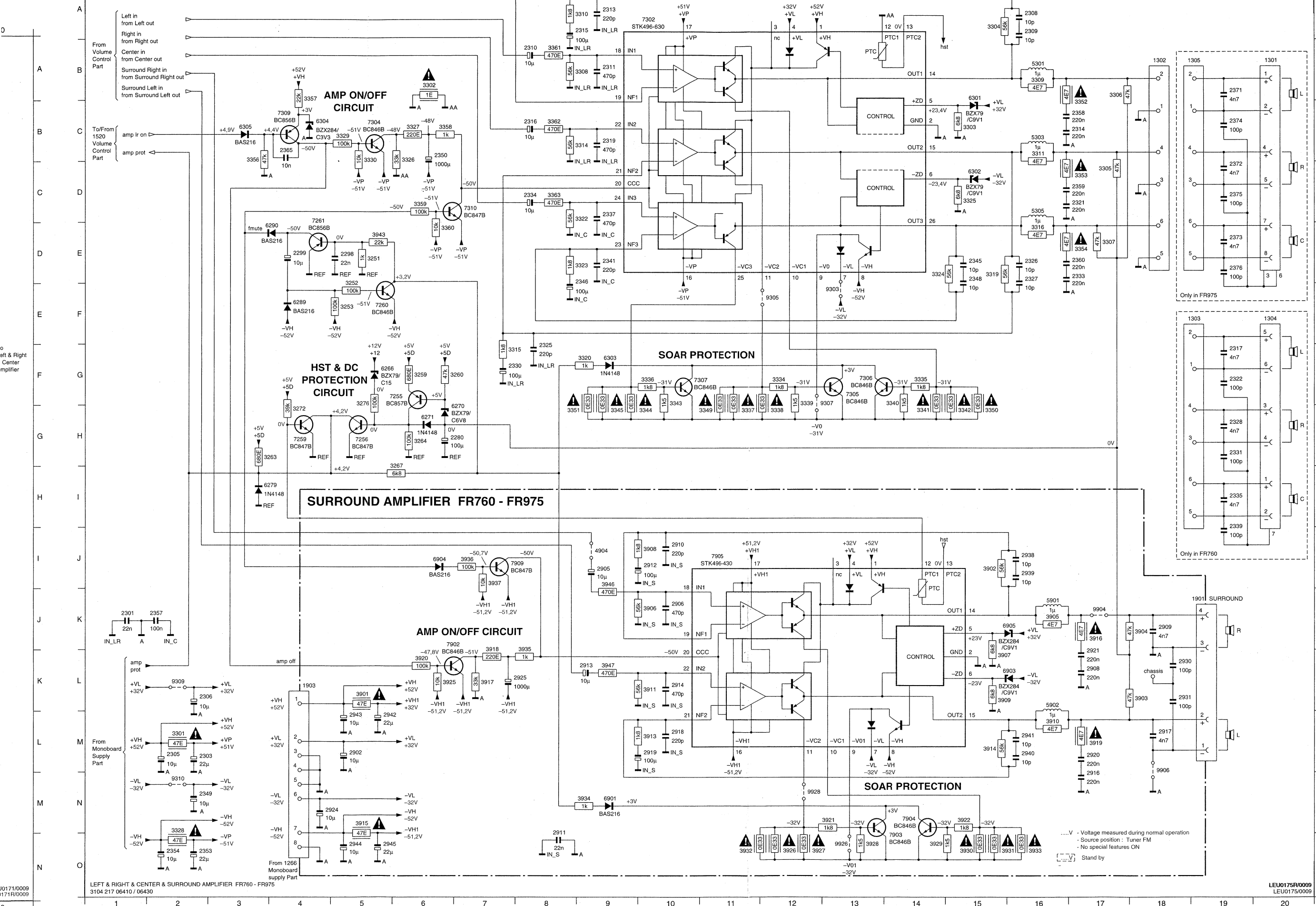
- Voltages measured during normal operation.
- Source position: Tuner FM.
- No special features ON.

Standby: Indicated by a symbol consisting of a horizontal line with a vertical bar at its center.

Monoboard Supply FR760
3104 217 06410

LEU0171/0009
LEU0171R/0009

LEFT & RIGHT & CENTER AMPLIFIER FR760 - FR975



1301	B20	3336	G10
1302	B18	3337	H11
1303	F18	3338	H12
1304	F20	3339	H12
1305	B18	3340	H14
1901	K19	3341	H14
1903	L4	3342	H15
2280	H6	3343	H10
2298	E5	3344	H10
2299	E4	3345	H9
2301	K1	3349	H10
2303	M2	3350	H15
2305	M2	3351	H8
2306	L2	3352	C17
2308	A16	3353	D17
2309	A16	3354	E17
2310	B8	3356	D3
2311	B9	3357	C4
2313	A9	3358	O6
2314	C17	3359	D6
2315	A8	3360	E6
2316	C8	3361	B8
2317	G19	3362	C8
2319	C9	3363	D8
2321	D17	3361	L5
2322	G19	3362	J15
2325	G8	3363	L18
2326	E16	3364	K18
2327	E16	3365	K16
2328	H19	3366	K10
2330	G7	3367	L15
2331	H19	3368	J10
2333	E17	3369	L15
2334	D8	3370	M16
2335	I19	3371	L10
2337	D9	3372	M10
2339	J19	3373	M15
2341	E9	3374	N5
2345	E15	3375	K17
2346	F8	3376	L7
2348	E15	3377	L7
2349	N2	3378	M17
2350	C6	3320	L6
2353	O2	3321	N12
2354	O2	3322	N15
2357	K2	3322	L6
2358	C17	3323	O12
2359	D17	3327	O12
2360	E17	3328	O13
2365	C4	3329	O14
2371	B19	3330	O15
2372	D19	3331	O15
2373	E19	3332	O11
2374	C19	3333	O16
2375	D19	3334	N9
2376	E19	3335	L8
2902	M5	3336	J7
2905	J9	3337	J7
2906	K10	3343	E5
2908	L17	3346	J9
2909	K18	3347	L9
2910	J10	4804	J9
2911	O8	4805	B16
2912	J10	5303	C16
2913	L9	5305	D16
2914	L10	5901	K16
2916	N17	5902	L16
2917	M18	6266	G5
2918	M10	6270	H6
2919	M10	6271	H6
2920	M17	6279	I3
2921	L17	6289	F4
2924	N4	6290	E3
2925	L7	6301	B15
2930	L18	6302	D15
2931	L18	6303	G9
2938	J16	6304	C4
2939	J16	6305	C3
2940	M16	6901	N9
2941	M16	6903	L15
2942	M5	6904	J6
2943	M5	6905	K15
2944	O5	7255	G5
2945	O5	7256	H5
3251	E5	7259	H4
3252	F5	7260	F5
3253	F5	7261	E4
3259	G6	7302	A10
3260	G6	7304	C5
3263	H3	7305	G13
3264	H6	7306	G13
3267	I5	7307	G10
3272	H4	7309	C4
3276	H5	7310	D7
3301	M2	7902	K6
3302	B6	7903	O14
3303	C15	7904	B14
3304	C15	7905	J11
3305	D17	7909	J7
3306	B17	9303	F13
3307	E17	9305	F12
3308	B8	9307	H12
3309	B16	9309	L2
3310	A8	9310	N2
3311	C16	9904	K17
3314	C8	9906	H18
3315	G7	9926	O13
3316	E16	9928	N12
3319	E15		
3320	G9		
3322	D8		
3323	E8		
3324	E14		
3325	E15		
3326	D6		
3327	C6		
3328	N2		
3329	C5		
3330	A5		
3334	G12		
3335	G14		



G

MONO2 BOARD - MAPPING COMPONENT SIDE VIEW

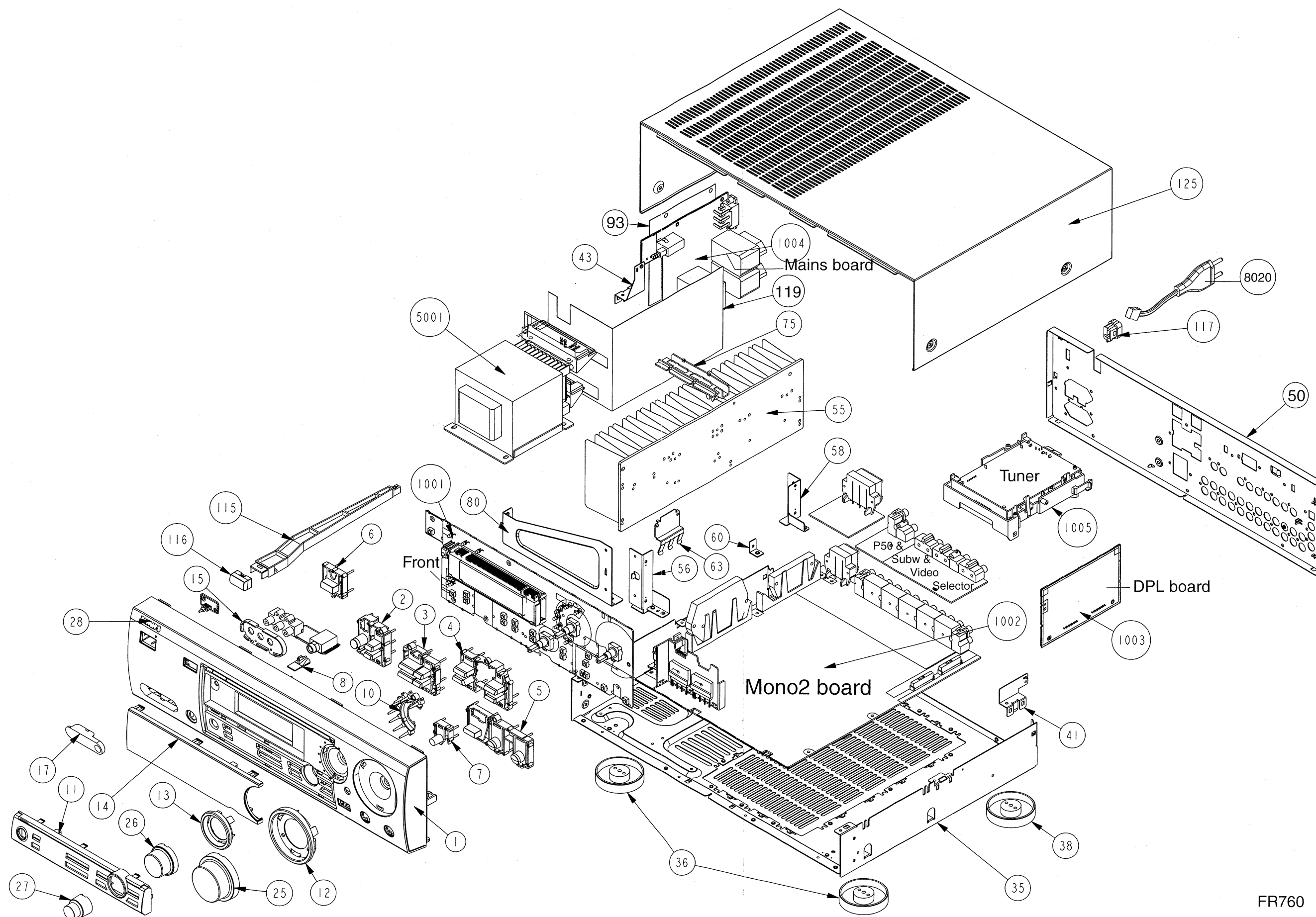
1251	E8	2306	G7	2643	C6	3271	E4	5306	F4	9272	F8	9536	C1	9619	D4
1252	E8	2310	F4	2644	C6	3273	G8	5901	F2	9273	F8	9537	D1	9621	D4
1253	E6	2315	F4	2645	B6	3274	G8	5902	F1	9274	E9	9538	D1	9624	D7
1254	D6	2316	F4	2646	C6	3276	E3	6251	F9	9275	F8	9539	D1	9625	C7
1255	D4	2330	F4	2647	B4	3291	G9	6252	F9	9276	D8	9540	D2	9626	D4
1256	E7	2334	G4	2648	B4	3301	F4	6253	E9	9278	D8	9541	D2	9627	D4
1257	D5	2346	G5	2649	A4	3303	F7	6254	E9	9279	F8	9542	C2	9628	D5
1258	E5	2349	F7	2650	B4	3309	F5	6255	D5	9280	E7	9543	D2	9629	E2
1259	E8	2350	G4	2651	A4	3311	E5	6256	D5	9281	D3	9544	D1	9630	D4
1260	F8	2352	F5	2652	B4	3313	G7	6257	E6	9285	E8	9545	D1	9631	D4
1261	F8	2353	F5	2653	A6	3316	E4	6258	E6	9286	F8	9546	D2	9632	D4
1262	E8	2354	F6	2654	A6	3318	G7	6259	D6	9287	F8	9547	E7	9633	A2
1265	E7	2356	G5	2655	A6	3325	G7	6260	G8	9288	E8	9548	D3	9643	A6
1266	E7	2357	G5	2656	A6	3328	G5	6261	E6	9301	G7	9549	D3	9645	A1
1270	A2	2365	F4	2657	A6	3337	F6	6262	E6	9302	F7	9550	A3	9647	A3
1272	E7	2527	B3	2658	A6	3338	F6	6263	D6	9303	G7	9551	A3	9648	A3
1302	E6	2528	C3	2659	B6	3341	F6	6264	G7	9304	G6	9552	A3	9651	A7
1501	A1	2531	F1	2660	C7	3342	F6	6266	D3	9305	G6	9553	A3	9654	D2
1502	B1	2532	D2	2661	A4	3344	F6	6267	D7	9306	G6	9555	B3	9655	C8
1503	A1	2533	C7	2662	B4	3345	F6	6268	D6	9307	G6	9556	B3	9656	C7
1511	D2	2534	C7	2663	A6	3349	F6	6270	E3	9308	F7	9557	B3	9657	B8
1512	E1	2535	B5	2664	B7	3350	F6	6271	E3	9309	G7	9558	C3	9903	E4
1513	D1	2536	B5	2665	B6	3351	F6	6274	E7	9310	E7	9559	C3	9904	F2
1514	C1	2537	A7	2666	C6	3352	F5	6275	E7	9311	F5	9560	C3	9905	F1
1515	A9	2538	A7	2667	A4	3353	F5	6276	E4	9312	F5	9561	C3	9906	G1
1516	C1	2539	B3	2668	B4	3354	E5	6279	E3	9313	F5	9562	C3	9907	D5
1520	B8	2540	B3	2669	A6	3357	F4	6280	E5	9314	F5	9563	C3	9908	F3
1521	A2	2541	C4	2670	B6	3505	A4	6281	E5	9315	E4	9564	C4	9909	G3
1522	A2	2542	C4	2689	B7	3506	A3	6301	G7	9316	G5	9566	A4	9910	F2
1523	A3	2543	C4	2690	B8	3535	D3	6302	F7	9318	G5	9567	A4	9911	F2
1524	A3	2544	C4	2691	A5	3536	D3	6303	E3	9319	G5	9568	A4	9912	F2
1525	F1	2553	C5	2692	B5	3561	B3	6501	C2	9320	G6	9569	A5	9913	F3
1526	E2	2554	C5	2693	A7	3566	C2	6601	A9	9321	G6	9570	A5	9914	F3
1527	E2	2557	C3	2694	A7	3567	B2	6602	B9	9322	G6	9571	A5	9915	E3
1530	D5	2558	D3	2695	B7	3583	C2	6642	E4	9323	G7	9573	B5	9916	F2
1545	B2	2561	C2	2696	B8	3584	B2	6643	D4	9324	E6	9574	B6	9917	G4
1546	C1	2562	B2	2697	A5	3588	A1	6644	D2	9325	E6	9577	B6	9918	F3
1601	A9	2563	D7	2698	A5	3597	A2	6645	F2	9326	E6	9578	B6	9919	F3
1901	G1	2564	C7	2699	A7	3598	A2	6649	D7	9501	A1	9579	B6	9920	F2
1902	F4	2565	B5	2700	A7	3620	C6	6650	B3	9502	A1	9580	B6	9921	D8
1903	F3	2566	B7	2853	F1	3627	B9	7251	G7	9503	A2	9581	B6	9922	F3
2251	F9	2567	C5	2854	E1	3629	A9	7257	E4	9504	A2	9583	C5	9923	G3
2253	E8	2568	C6	2858	E1	3630	D3	7258	E4	9505	A2	9584	B5	9924	G3
2254	F9	2571	B1	2860	E2	3631	C3	7301	G5	9507	A2	9585	C5	9925	F3
2256	E8	2572	B1	2877	B7	3632	C3	7302	G6	9508	A2	9586	C5	9926	F2
2258	E7	2575	C1	2878	C8	3691	D4	7303	G5	9509	B1	9588	B7	9927	G3
2259	D7	2576	B1	2879	A5	3694	E2	7501	D3	9510	B2	9589	A8	9928	G3
2260	F7	2581	C2	2880	A5	3697	B6	7571	B1	9511	C3	9590	A8	9929	G3
2261	F7	2582	B2	2881	A7	3855	E1	7572	B2	9513	A2	9591	A8	9930	G3
2262	D8	2593	C3	2882	A7	3901	G2	7644	B3	9514	A2	9592	B8		
2264	F8	2594	B3	2901	G2	3904	F1	7901	G2	9515	D3	9593	B8		
2266	E6	2603	A8	2902	F3	3905	F2	7905	G3	9516	B5	9594	C1		
2267	G8	2604	A8	2905	G1	3907	G3	7910	G8	9517	B5	9595	C2		
2268	D6	2607	A8	2912	G2	3909	G3	9251	E8	9520	D3	9599	C8		
2269	D9	2608	A8	2913	G1	3910	F1	9252	F8	9521	B2	9600	C8		
2272	C8	2611	A8	2919	G1	3915	G2	9253	E4	9522	B2	9601	C8		
2275	D7	2612	F1	2923	G2	3916	F2	9254	E4	9523	B2	9603	D6		
2278	D6	2613	E2	2924	F3	3919	F1	9256	D6	9524	B3	9604	D6		
2280	E3	2614	A9	2925	G4	3926	F3	9257	F7	9525	B2	9605	D6		
2283	E5	2617	A8	2942	G2	3927	F3	9258	D9	9526	B2	9606	C8		
2287	C8	2618	A8	2943	F3	3930	F3	9259	D8	9527	B3	9608	D6		
2290	G9	2629	B7	2944	G3	3931	F3	9261	E4	9528	B2	9609	D6		
2292	F8	2630	B7	2945	G2	3932	F3	9262	F5	9529	B2	9611	D6		
2293	D8	2631	A4	3254	C9	3933	F2	9263	F2	9530	C2	9613	C5		
2297	E3	2632	A6	3257	C9	5301	F5	9265	E4	9531	B2	9614	C5		
2299	E3	2637	C7	3261	G8	5302	F5	9267	E4	9532	C2	9615	D5		
2302	F5	2639	B5	3262	G8	5303	E5	9268	E4	9533	C2	9616	D5		
2303	F5	2641	C6	3265	E5	5304	E5	9269	E7	9534	C2	9617	C5		
2305	G7	2642	C6	3270	E4	5305	F4	9271	F7	9535	C2	9618	D4		

MONO2 BOARD - MAPPING COPPER SIDE VIEW

2257	G2	2550	C5	2862	B3	3295	G1	3546	C5	3644	C3	3879	A3	4513	A8	4925	F5
2270	G1	2551	C5	2863	C3	3302	G3	3547	C5	3645	B3	3880	B3	4514	B8	6289	E6
2271	G1	2552	C5	2864	A5	3304	F5	3548	C5	3646	C3	3881	A3	4515	B8	6290	E6
2273	G2	2555	D6	2865	B5	3305	F4	3549	D6	3649	A5	3882	B3	4516	B8	6304	F5
2274	G2	2556	D6	2866	A3	3306	F4	3550	D6	3650	B5	3883	B2	4517	B7	6305	F5
2276	E3	2559	C6	2867	A3	3307	E5	3551	C4	3651	A5	3884	B1	4518	B7	6641	F5
2277	E2	2569	F8	2868	C3	3308	G4	3552	C4	3652	B5	3885	A4	4519	C8	6646	E7
2279	G1	2570	B6	2869	C3	3310	F5	3553	C7	3653	A3	3886	A4	4520	C7	6647	E7
2281	G1	2573	B8	2871	B3	3314	G4	3554	D6	3654	A3	3887	A2	4521	D7	6648	D7
2282	G1	2574	B8	2872	C3	3315	F5	3555	C6	3655	A3	3888	A2	4522	D7	6901	F7
2295	G1	2577	C8	2873	A5	3319	F5	3556	C5	3656	A3	3889	E7	4523	D7	6903	G6
2298	E7	2578	B8	2874	B5	3320	E6	3557	B6	3657	A3	3890	E7	4524	D7	6904	G5
2301	F5	2579	C8	2875	A3	3322	G4	3560	F8	3658	A3	3891	F5	4526	E7	6905	G6
2304	G3	2580	B7	2876	B3	3323	G4	3562	B6	3659	B2	3892	F5	4528	D6	7252	G1
2307	F5	2583	C7	2883	B3	3324	G4	3563	E7	3660	B1	3893	D5	4529	D6	7253	D3
2308	G5	2584	B7	2884	C3	3326	G5	3571	B8	3661	B2	3894	D7	4530	C7	7254	G1
2309	G5	2585	B8	2885	B5	3327	G5	3572	B8	3662	B1	3895	F7	4531	C7	7255	E6
2311	G4	2586	B8	2886	B5	3329	G5	3573	B8	3663	A5	3896	F7	4532	C7	7256	E7
2312	G4	2595	C6	2887	A3	3330	G5	3574	B8	3664	A4	3902	G7	4533	C7	7259	E7
2313	G4	2596	B6	2888	A3	3334	F3	3575	B8	3665	A4	3903	F8	4537	A6	7260	E7
2314	F4	2599	C6	2904	G7	3335	F3	3576	B8	3666	A4	3906	G7	4538	A5	7261	E7
2319	G4	2600	B6	2906	G7	3336	F3	3577	C8	3667	A2	3908	G7	4539	B5	7304	G5
2320	G4	2601	A7	2907	G7	3339	F3	3578	B8	3668	A2	3911	G7	4540	A6	7305	F3
2321	F4	2602	B7	2908	F7	3340	F3	3579	C8	3669	A2	3913	G7	4541	A3	7306	F3
2324	G5	2605	A1	2909	F8	3343	F3	3580	B8	3670	A1	3914	G7	4542	A3	7307	F3
2325	G4	2606	A1	2910	G7	3356	F5	3581	C8	3671	C2	3917	G6	4543	A3	7309	F5
2326	G5	2609	B8	2911	G7	3358	G5	3582	B7	3672	C2	3918	G6	4544	A3	7310	G5

PCS 102 468

EXPLODED VIEW



SCALE 0.250

FR760

Note: Only the parts mentioned in this list are normal service parts.

PARTSLIST - EXPLODED VIEW**MECHANICAL PARTS**

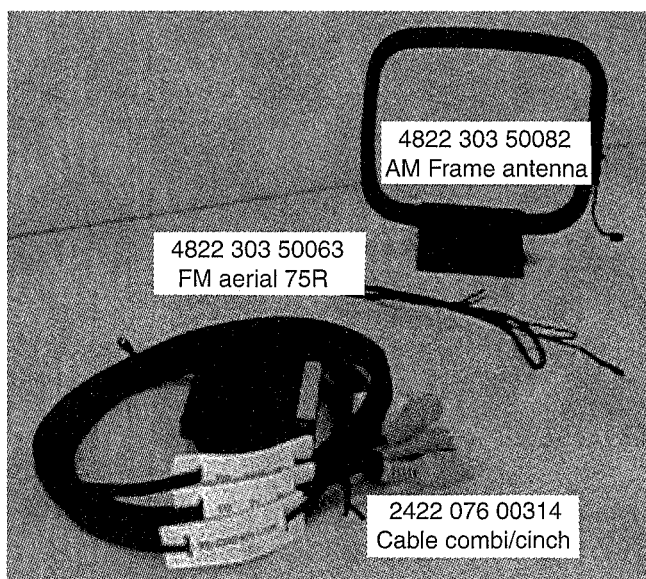
1	3104 217 52770	FRONT CAB ASSY FR760
2	4822 410 12442	BUTTON HINGE ASSY SURROUND
3	4822 410 12435	BUTTONS HINGE TUNER
4	4822 410 12443	BUTTON HINGE ASSY MENU
5	4822 410 12436	BUTTONS HINGE BT
6	4822 410 12437	BUTTONS EASY LINK
7	4822 410 12478	BUTTON HINGE A/V
8	4822 380 10274	LIGHT GUIDE SURROUND
10	4822 380 10277	LIGHT GUIDE SELECTOR
11	3104 217 53010	ORNAMENTAL PLATE ASSY FR760
12	3104 217 52130	RING KNOB VOLUME
13	3104 217 52140	RING KNOB SOURCE SELECTOR
14	4822 450 10664	WINDOW DISPLAY ASSY FR735
15	4822 426 10895	BACKPLATE A/V
17	4822 442 01879	COVER PLATE ASSY
25	4822 410 12438	KNOB VOLUME (BL)
26	4822 410 12439	KNOB SOURCE SELECTOR (BL)
27	4822 410 12441	KNOB MENU NAV (BL)
28	4822 459 10887	BADGE PHILIPS ASSY
36	4822 691 10773	LEG SILVER
38	4822 462 42158	FOOT BLACK
115	4822 535 10638	POWER ROD
116	4822 462 11176	POWER CAP
117	4822 532 60948	BUSH
125	4822 442 01817	COVERPLATE

ELECTRICAL PARTS

5001 ▲	4822 146 11165	TRAFO FR755 3X100W+2X50W/00
8002	4822 320 12706	FLEXIBLE FOIL 15P - 220MM
8020	4822 321 11139	POWER CORD

MISCELLANEOUS

4822 303 50063	FM AERIAL
2422 076 00314	CABLE COMB/CINCH 1M5
4822 303 50082	AM FRAME
4822 219 10707	RC2526/01
3103 306 16980	INSTR.F.USE FR740/00P



ELECTRICAL PARTSLIST - MONO2 BOARD**MISCELLANEOUS**

1260 ▲ 4822 252 51123 FUSE 6,3A
 1261 ▲ 4822 252 51123 FUSE 6,3A
 1304 4822 265 11607 CLICK FIT 6P LS
 1501 4822 265 11586 2P YKC21-4052
 1502 4822 267 31823 YKC21-3424

1512 4822 267 31823 YKC21-3424
 1513 4822 267 31823 YKC21-3424
 1514 4822 267 31823 YKC21-3424
 1520 4822 265 10981 15FE-BT-VK-N
 1525 4822 265 11608 2P YKC21-4053

1540 4822 265 20542 CINCH 2P
 1550 4822 267 31729 CINCH 1P
 1801 4822 267 31996 CINCH 1P
 1802 4822 265 11619 CINCH 2P
 1803 4822 265 11619 CINCH 2P

1901 4822 265 11609 CLICK FIT 4P LS

CAPACITORS

2251 5322 121 42578 100NF 5% 250V
 2253 4822 121 43526 47NF 5% 250V
 2254 5322 121 42578 100NF 5% 250V
 2256 4822 121 43526 47NF 5% 250V
 2257 4822 122 33177 10NF 20% X7R 50V

2259 4822 124 80415 4700UF20% 50V
 2260 4822 124 80415 4700UF20% 50V
 2262 4822 124 12423 4700UF 20% 63V
 2264 4822 124 12423 4700UF 20% 63V
 2266 5322 121 42386 100NF 5% 63V

2267 4822 124 41751 47UF 20% 50V
 2268 5322 121 42386 100NF 5% 63V
 2269 4822 124 11583 2200UF 20% 35V
 2270 4822 126 13838 100NF Y5V 50V P80M20
 2271 4822 126 14583 470NF 10% 16V XTR

2273 4822 126 14585 100NF 10% X7R 0805 50V
 2274 4822 126 14583 470NF 10% 16V XTR
 2275 4822 124 81144 1000U 16V
 2276 4822 126 14585 100NF 10% X7R 50V
 2277 4822 126 14583 470NF 10% 16V XTR

2278 4822 124 22652 2,2UF20% 50V
 2279 4822 126 14585 100NF 10% X7R 50V
 2280 4822 124 41584 100UF 20% 10V
 2281 4822 126 13838 100NF Y5V 50V P80M20
 2282 4822 126 14583 470NF 10% 16V XTR

2287 4822 124 40784 3300UF 20% 16V
 2290 4822 124 40248 10UF20% 63V
 2295 4822 122 33177 10NF 20% X7R 50V
 2298 5322 122 32654 22NF10%X7R 63V
 2299 5322 124 40641 10UF 20% 100V

2301 5322 122 32654 22NF10%X7R 63V
 2303 4822 124 40764 22UF 100 V
 2305 5322 124 40641 10UF 20% 100V
 2306 4822 124 40248 10UF20% 63V
 2308 5322 122 32448 10PF 5% NP0 63V

2309 5322 122 32448 10PF 5% NP0 63V
 2310 4822 124 40248 10UF20% 63V
 2311 5322 122 32268 470PF 10% 50V
 2313 4822 122 33575 220PF 5% NP0 63V
 2314 4822 126 13473 220NF80-20% 50V

CAPACITORS

2315 4822 124 41584 100UF 20% 10V
 2316 4822 124 40248 10UF20% 63V
 2317 5322 126 10223 4,7NF10%X7R 63V
 2319 5322 122 32268 470PF 10% 50V
 2321 4822 126 13473 220NF80-20% 50V

2322 5322 122 32531 100PF 5%NP0 50V
 2325 4822 122 33575 220PF 5% NP0 63V
 2326 5322 122 32448 10PF 5% NP0 63V
 2327 5322 122 32448 10PF 5% NP0 63V
 2328 5322 126 10223 4,7NF10%X7R 63V

2330 4822 124 41584 100UF 20% 10V
 2331 5322 122 32531 100PF 5%NP0 50V
 2333 4822 126 13473 220NF80-20% 50V
 2334 4822 124 40248 10UF20% 63V
 2335 5322 126 10223 4,7NF10%X7R 63V

2337 5322 122 32268 470PF 10% 50V
 2339 5322 122 32531 100PF 5%NP0 50V
 2341 4822 122 33575 220PF 5% NP0 63V
 2345 5322 122 32448 10PF 5% NP0 63V
 2346 4822 124 41584 100UF 20% 10V

2348 5322 122 32448 10PF 5% NP0 63V
 2349 4822 124 40248 10UF20% 63V
 2350 4822 124 40181 220UF20% 10V
 2353 4822 124 40764 22UF 100 V
 2354 5322 124 40641 10UF 20% 100V

2357 4822 126 12882 100NF+80-20% 50V
 2358 4822 126 13473 220NF80-20% 50V
 2359 4822 126 13473 220NF80-20% 50V
 2360 4822 126 13473 220NF80-20% 50V
 2365 4822 121 41857 10NF 5% 250V

2501 5322 126 10511 1NF 5%NP0 50V
 2502 5322 126 10511 1NF 5%NP0 50V
 2505 5322 126 10511 1NF 5%NP0 50V
 2506 5322 126 10511 1NF 5%NP0 50V
 2507 5322 126 10511 1NF 5%NP0 50V

2508 5322 122 32531 100PF 5%NP0 50V
 2509 5322 122 32531 100PF 5%NP0 50V
 2511 5322 122 32531 100PF 5%NP0 50V
 2512 5322 122 32531 100PF 5%NP0 50V
 2513 5322 122 32531 100PF 5%NP0 50V

2514 5322 122 32531 100PF 5%NP0 50V
 2515 5322 122 32531 100PF 5%NP0 50V
 2516 5322 122 32531 100PF 5%NP0 50V
 2517 5322 122 32531 100PF 5%NP0 50V
 2518 5322 122 32531 100PF 5%NP0 50V

2519 5322 122 32531 100PF 5%NP0 50V
 2520 5322 122 32531 100PF 5%NP0 50V
 2521 5322 122 32531 100PF 5%NP0 50V
 2522 5322 122 32531 100PF 5%NP0 50V
 2523 5322 122 32531 100PF 5%NP0 50V

2524 5322 122 32531 100PF 5%NP0 50V
 2531 4822 121 42408 220NF 5% 63V
 2532 4822 121 42408 220NF 5% 63V
 2533 4822 124 81151 22UF 50V
 2534 4822 124 81151 22UF 50V

2535 4822 124 81151 22UF 50V
 2536 4822 124 81151 22UF 50V
 2537 4822 124 81151 22UF 50V

ELECTRICAL PARTSLIST - MONO2 BOARD**CAPASITORS**

2538	4822 124 81151	22UF	50V
2539	4822 124 40207	100UF20%	25V
2540	4822 124 40433	47UF20%	25V
2541	4822 124 40248	10UF20%	63V
2542	4822 124 40248	10UF20%	63V
2543	4822 124 11912	220UF 20%	6,3V
2544	4822 124 11912	220UF 20%	6,3V
2545	4822 122 33575	220PF 5% NP0	63V
2546	4822 122 33575	220PF 5% NP0	63V
2549	5322 122 32658	22PF 5%	50V
2550	5322 122 32658	22PF 5%	50V
2551	4822 126 13838	100NF 50V P80M20	
2552	4822 126 13838	100NF 50V P80M20	
2553	4822 124 41751	47UF 20%	50V
2554	4822 124 41751	47UF 20%	50V
2555	4822 126 13838	100NF 50V P80M20	
2556	4822 126 13838	100NF 50V P80M20	
2557	4822 124 41751	47UF 20%	50V
2558	4822 124 41751	47UF 20%	50V
2559	4822 126 12105	CER2 50V 33NF PM5	
2563	4822 123 14025	16V 2200U 20%	
2564	4822 124 22652	2,2UF20%	50V
2565	4822 124 22652	2,2UF20%	50V
2566	4822 124 22652	2,2UF20%	50V
2567	4822 124 40769	4,7UF20%	100V
2568	4822 124 40769	4,7UF20%	100V
2569	5322 122 32531	100PF 5%NP0	50V
2603	4822 124 81151	22UF	50V
2604	4822 124 81151	22UF	50V
2605	4822 126 13692	47PF 1% NP0	63V
2606	4822 126 13692	47PF 1% NP0	63V
2607	4822 124 41751	47UF 20%	50V
2608	4822 124 41751	47UF 20%	50V
2610	4822 122 33575	220PF 5% NP0	63V
2611	4822 124 40207	100UF20%	25V
2612	4822 124 40248	10UF20%	63V
2613	4822 124 40248	10UF20%	63V
2614	4822 124 40207	100UF20%	25V
2615	5322 122 32654	22NF10%X7R	63V
2616	5322 122 32654	22NF10%X7R	63V
2617	4822 124 40248	10UF20%	63V
2618	4822 124 40248	10UF20%	63V
2619	5322 122 32531	100PF 5%NP0	50V
2620	5322 122 32531	100PF 5%NP0	50V
2622	5322 122 32531	100PF 5%NP0	50V
2623	5322 122 32531	100PF 5%NP0	50V
2627	5322 122 32531	100PF 5%NP0	50V
2628	4822 126 14585	100NF 10% X7R	50V
2629	4822 124 41751	47UF 20%	50V
2630	5322 121 42386	100NF 5%	63V
2631	5322 121 42386	100NF 5%	63V
2632	5322 121 42386	100NF 5%	63V
2633	5322 122 32654	22NF10%X7R	63V
2634	5322 122 32654	22NF10%X7R	63V
2635	5322 122 32654	22NF10%X7R	63V
2636	4822 126 14585	100NF 10% X7R	50V
2637	4822 124 41751	47UF 20%	50V
2638	4822 126 14585	100NF 10% X7R	50V

CAPACITORS

2639	4822 124 41751	47UF 20%	50V
2641	4822 124 21913	1UF20%	63V
2642	4822 124 21913	1UF20%	63V
2643	4822 124 21913	1UF20%	63V
2644	4822 124 21913	1UF20%	63V
2645	4822 124 21913	1UF20%	63V
2646	4822 124 21913	1UF20%	63V
2647	4822 124 21913	1UF20%	63V
2648	4822 124 21913	1UF20%	63V
2649	4822 124 21913	1UF20%	63V
2650	4822 124 21913	1UF20%	63V
2651	4822 124 21913	1UF20%	63V
2652	4822 124 21913	1UF20%	63V
2655	4822 124 21913	1UF20%	63V
2656	4822 124 21913	1UF20%	63V
2657	4822 124 21913	1UF20%	63V
2658	4822 124 21913	1UF20%	63V
2659	4822 124 22652	2,2UF20%	50V
2660	4822 124 22652	2,2UF20%	50V
2661	4822 124 22652	2,2UF20%	50V
2662	4822 124 22652	2,2UF20%	50V
2663	4822 124 22652	2,2UF20%	50V
2664	4822 124 22652	2,2UF20%	50V
2665	4822 121 43526	47NF 5%	250V
2666	4822 121 43526	47NF 5%	250V
2667	4822 121 43526	47NF 5%	250V
2668	4822 121 43526	47NF 5%	250V
2669	4822 121 43526	47NF 5%	250V
2670	4822 121 43526	47NF 5%	250V
2671	5322 122 31866	6,8NF10%X7R	63V
2672	5322 122 31866	6,8NF10%X7R	63V
2673	5322 122 31866	6,8NF10%X7R	63V
2674	5322 122 31866	6,8NF10%X7R	63V
2675	5322 122 31866	6,8NF10%X7R	63V
2676	5322 122 31866	6,8NF10%X7R	63V
2677	5322 122 32654	22NF10%X7R	63V
2678	5322 122 32654	22NF10%X7R	63V
2679	5322 122 32654	22NF10%X7R	63V
2680	5322 122 32654	22NF10%X7R	63V
2681	5322 122 32654	22NF10%X7R	63V
2682	5322 122 32654	22NF10%X7R	63V
2683	5322 122 32654	22NF10%X7R	63V
2684	5322 122 32654	22NF10%X7R	63V
2685	5322 122 32654	22NF10%X7R	63V
2686	5322 122 32654	22NF10%X7R	63V
2687	5322 122 32654	22NF10%X7R	63V
2688	5322 122 32654	22NF10%X7R	63V
2689	5322 121 42465	68NF 5%	63V
2690	5322 121 42465	68NF 5%	63V
2691	5322 121 42465	68NF 5%	63V
2692	5322 121 42465	68NF 5%	63V
2693	5322 121 42465	68NF 5%	63V
2694	5322 121 42465	68NF 5%	63V
2695	5322 121 42465	68NF 5%	63V
2696	5322 121 42465	68NF 5%	63V
2697	5322 121 42465	68NF 5%	63V
2698	5322 121 42465	68NF 5%	63V

ELECTRICAL PARTSLIST - MONO2 BOARD**CAPACITORS**

2699	5322 121 42465	68NF 5%	63V
2700	5322 121 42465	68NF 5%	63V
2801	4822 124 22833	10UF	50V
2802	4822 124 22833	10UF	50V
2803	4822 124 22833	10UF	50V
2804	4822 124 22833	10UF	50V
2805	4822 126 14585	100NF 10% X7R	50V
2806	4822 126 14585	100NF 10% X7R	50V
2807	4822 126 14585	100NF 10% X7R	50V
2808	4822 126 14585	100NF 10% X7R	50V
2809	5322 122 34098	10NF10%X7R	63V
2810	4822 124 40196	220UF20%	16V
2811	5322 122 34098	10NF10%X7R	63V
2812	4822 124 40196	220UF20%	16V
2813	4822 124 21913	1UF20%	63V
2814	4822 126 13692	47PF 1% NP0	63V
2815	4822 126 14585	100NF 10% X7R	50V
2816	5322 122 32654	22NF10%X7R	63V
2817	4822 124 21913	1UF20%	63V
2818	5322 122 32654	22NF10%X7R	63V
2821	5322 122 32654	22NF10%X7R	63V
2822	5322 122 32654	22NF10%X7R	63V
2831	5322 122 32531	100PF 5%NP0	50V
2832	4822 126 14585	100NF 10% X7R	50V
2833	5322 122 32654	22NF10%X7R	63V
2834	5322 122 32531	100PF 5%NP0	50V
2837	5322 122 32531	100PF 5%NP0	50V
2851	5322 122 32658	22PF 5%	50V
2852	5322 122 32658	22PF 5%	50V
2853	4822 124 81151	22UF	50V
2854	4822 124 81151	22UF	50V
2855	5322 122 32531	100PF 5%NP0	50V
2856	5322 122 32531	100PF 5%NP0	50V
2857	4822 126 14585	100NF 10% X7R	50V
2858	4822 124 41751	47UF 20%	50V
2860	4822 124 41751	47UF 20%	50V
2861	5322 122 32654	22NF10%X7R	63V
2862	5322 122 32531	100PF 5%NP0	50V
2863	5322 122 32531	100PF 5%NP0	50V
2864	5322 122 32531	100PF 5%NP0	50V
2865	5322 122 32531	100PF 5%NP0	50V
2866	5322 122 32531	100PF 5%NP0	50V
2867	5322 122 32531	100PF 5%NP0	50V
2868	4822 122 33575	220PF 5% NP0	63V
2869	4822 122 33575	220PF 5% NP0	63V
2871	4822 122 33177	10NF 20% X7R	50V
2872	4822 122 33177	10NF 20% X7R	50V
2873	4822 122 33177	10NF 20% X7R	50V
2875	4822 122 33177	10NF 20% X7R	50V
2876	4822 122 33177	10NF 20% X7R	50V
2877	5322 121 42386	100NF 5%	63V
2878	5322 121 42386	100NF 5%	63V
2879	5322 121 42386	100NF 5%	63V
2880	5322 121 42386	100NF 5%	63V
2881	5322 121 42386	100NF 5%	63V
2882	5322 121 42386	100NF 5%	63V
2883	5322 126 10511	1NF 5%NP0	50V

CAPACITORS

2884	5322 126 10511	1NF 5%NP0	50V
2885	5322 126 10511	1NF 5%NP0	50V
2886	5322 126 10511	1NF 5%NP0	50V
2887	4822 122 33127	2,2NF10%X7R	63V
2888	4822 122 33127	2,2NF10%X7R	63V
2902	4822 124 40248	10UF20%	63V
2905	4822 124 40248	10UF20%	63V
2906	5322 122 32268	470PF 10%	50V
2908	4822 126 13473	220NF80-20%	50V
2909	5322 126 10223	4,7NF10%X7R	63V
2910	4822 122 33575	220PF 5% NP0	63V
2911	5322 122 32654	22NF10%X7R	63V
2912	4822 124 41584	100UF 20%	10V
2913	4822 124 40248	10UF20%	63V
2914	5322 122 32268	470PF 10%	50V
2916	4822 126 13473	220NF80-20%	50V
2917	5322 126 10223	4,7NF10%X7R	63V
2918	4822 122 33575	220PF 5% NP0	63V
2919	4822 124 41584	100UF 20%	10V
2920	4822 126 13473	220NF80-20%	50V
2921	4822 126 13473	220NF80-20%	50V
2924	4822 124 40248	10UF20%	63V
2925	4822 124 40181	220UF20%	10V
2926	4822 126 14585	100NF 10% X7R	50V
2930	5322 122 32531	100PF 5%NP0	50V
2931	5322 122 32531	100PF 5%NP0	50V
2932	5322 122 32531	100PF 5%NP0	50V
2933	5322 122 32531	100PF 5%NP0	50V
2934	5322 126 10511	1NF 5%NP0	50V
2937	4822 122 33575	220PF 5% NP0	63V
2938	5322 122 32448	10PF 5% NP0	63V
2939	5322 122 32448	10PF 5% NP0	63V
2940	5322 122 32448	10PF 5% NP0	63V
2941	5322 122 32448	10PF 5% NP0	63V
2942	4822 124 40764	22UF	100 V
2943	5322 124 40641	10UF 20%	100V
2944	5322 124 40641	10UF 20%	100V
2945	4822 124 40764	22UF	100 V

RESISTORS

3251	4822 051 10102	1K00	2%	0,25W
3252	4822 117 10837	100K	1%	0,1W
3253	4822 117 10837	100K	1%	0,1W
3254 ▲	4822 117 11342	0R33	5%	2W
3256	4822 117 10833	10K	1%	0,1W
3257 ▲	4822 117 11342	0R33	5%	2W
3258	4822 117 11149	82K	1%	0,1W
3259	4822 117 10361	680R	1%	0,1W
3260	4822 117 10834	47K	1%	0,1W
3261	4822 116 83881	390R	5%	0,5W
3262	4822 050 21003	10K00	1%	0,6W
3263	4822 117 10361	680R	1%	0,1W
3264	4822 117 10837	100K	1%	0,1W
3265 ▲	4822 052 10479	47R00	5%	0,33W
3266	4822 051 20223	22K00	5%	0,1W
3267	4822 117 11507	6K8	1%	0,1W
3268	4822 051 20332	3K30	5%	0,1W
3269	4822 051 20332	3K30	5%	0,1W
3270 ▲	4822 052 10479	47R00	5%	0,33W

ELECTRICAL PARTSLIST - MONO2 BOARD

RESISTORS

3271 ▲	4822 052 10479	47R00	5%	0,33W
3272	4822 051 20393	39K00	5%	0,1W
3273	4822 116 83872	220R	5%	0,5W
3274	4822 116 83872	220R	5%	0,5W
3275	4822 117 10353	150R	1%	0,1W
3276	4822 116 52234	100K	5%	0,5W
3291 ▲	4822 052 10109	10R00	5%	0,33W
3292	4822 116 83933	15K	1%	0,1W
3293	4822 117 10833	10K	1%	0,1W
3294	4822 117 10833	10K	1%	0,1W
3295	4822 116 83933	15K	1%	0,1W
3301 ▲	4822 052 10479	47R00	5%	0,33W
3302 ▲	4822 117 11151	1R	5%	
3303	4822 116 83961	6K8	5%	
3304	4822 117 11148	56K	1%	0,1W
3305	4822 117 10834	47K	1%	0,1W
3306	4822 117 10834	47K	1%	0,1W
3307	4822 117 10834	47K	1%	0,1W
3308	4822 117 11148	56K	1%	0,1W
3309	4822 050 24708	4R70	1%	0,6W
3310	4822 051 20182	1K80	5%	0,1W
3311	4822 050 24708	4R70	1%	0,6W
3314	4822 117 11148	56K	1%	0,1W
3315	4822 051 20182	1K80	5%	0,1W
3316	4822 050 24708	4R70	1%	0,6W
3319	4822 117 11148	56K	1%	0,1W
3320	4822 051 10102	1K00	2%	0,25W
3322	4822 117 11148	56K	1%	0,1W
3323	4822 051 20182	1K80	5%	0,1W
3324	4822 117 11148	56K	1%	0,1W
3325	4822 116 83961	6K8	5%	
3326	4822 051 20333	33K00	5%	0,1W
3327	4822 117 11503	220R	1%	0,1W
3328 ▲	4822 052 10479	47R00	5%	0,33W
3329	4822 117 10837	100K	1%	0,1W
3330	4822 117 10833	10K	1%	0,1W
3334	4822 051 20182	1K80	5%	0,1W
3335	4822 051 20182	1K80	5%	0,1W
3336	4822 051 20182	1K80	5%	0,1W
3337 ▲	4822 117 11342	0R33	5%	2W
3338 ▲	4822 117 11342	0R33	5%	2W
3339	4822 117 11139	1K5	1%	0,1W
3340	4822 117 11139	1K5	1%	0,1W
3341 ▲	4822 117 11342	0R33	5%	2W
3342 ▲	4822 117 11342	0R33	5%	2W
3343	4822 117 11139	1K5	1%	0,1W
3344 ▲	4822 117 11342	0R33	5%	2W
3345 ▲	4822 117 11342	0R33	5%	2W
3349 ▲	4822 117 11342	0R33	5%	2W
3350 ▲	4822 117 11342	0R33	5%	2W
3351 ▲	4822 117 11342	0R33	5%	2W
3352 ▲	4822 053 10478	4R70	5%	1W
3353 ▲	4822 053 10478	4R70	5%	1W
3354 ▲	4822 053 10478	4R70	5%	1W
3356	4822 117 10834	47K	1%	0,1W
3357	4822 116 52257	22K	5%	0,5W
3358	4822 051 10102	1K00	2%	0,25W
3359	4822 117 10837	100K	1%	0,1W

RESISTORS

3360	4822 117 10833	10K	1%	0,1W
3361	4822 051 20471	470R00	5%	0,1W
3362	4822 051 20471	470R00	5%	0,1W
3363	4822 051 20471	470R00	5%	0,1W
3501	4822 116 83933	15K	1%	0,1W
3502	4822 116 83933	15K	1%	0,1W
3505	4822 116 52244	15K	5%	0,5W
3506	4822 116 52244	15K	5%	0,5W
3509	4822 116 83933	15K	1%	0,1W
3510	4822 116 83933	15K	1%	0,1W
3511	4822 051 20101	100R00	5%	0,1W
3512	4822 051 20101	100R00	5%	0,1W
3513	4822 117 10834	47K	1%	0,1W
3514	4822 117 10834	47K	1%	0,1W
3515	4822 051 20471	470R00	5%	0,1W
3516	4822 051 20471	470R00	5%	0,1W
3517	4822 051 20393	39K00	5%	0,1W
3518	4822 051 20393	39K00	5%	0,1W
3519	4822 051 20822	8K20	5%	0,1W
3520	4822 051 20822	8K20	5%	0,1W
3521	4822 051 20393	39K00	5%	0,1W
3522	4822 051 20393	39K00	5%	0,1W
3523	4822 051 20822	8K20	5%	0,1W
3524	4822 051 20822	8K20	5%	0,1W
3525	4822 051 20393	39K00	5%	0,1W
3526	4822 051 20393	39K00	5%	0,1W
3527	4822 051 20822	8K20	5%	0,1W
3528	4822 051 20822	8K20	5%	0,1W
3529	4822 051 20471	470R00	5%	0,1W
3530	4822 051 20471	470R00	5%	0,1W
3531	4822 051 20393	39K00	5%	0,1W
3532	4822 051 20393	39K00	5%	0,1W
3533	4822 051 20822	8K20	5%	0,1W
3534	4822 051 20822	8K20	5%	0,1W
3535	4822 116 52251	18K	5%	0,5W
3536	4822 116 52251	18K	5%	0,5W
3541	4822 051 20393	39K00	5%	0,1W
3542	4822 051 20393	39K00	5%	0,1W
3543	4822 117 12955	2K7 1%	0,1W	0805
3544	4822 117 12955	2K7 1%	0,1W	0805
3545	4822 117 10833	10K	1%	0,1W
3546	4822 117 10833	10K	1%	0,1W
3547	4822 051 20562	5K6 5%	0,1W	0805
3548	4822 051 20562	5K6 5%	0,1W	0805
3549	4822 051 20332	3K30	5%	0,1W
3550	4822 051 20332	3K30	5%	0,1W
3551	4822 117 11504	270R	1%	0,1W
3552	4822 117 11504	270R	1%	0,1W
3553	4822 117 11504	270R	1%	0,1W
3554	4822 117 11504	270R	1%	0,1W
3555	4822 051 20332	3K30	5%	0,1W
3560	4822 051 10102	1K00	2%	0,25W
3561 ▲	4822 052 10478	4R70	5%	0,33W
3562	4822 051 20471	470R00	5%	0,1W
3563	4822 051 10102	1K00	2%	0,25W
3601	4822 051 20101	100R00	5%	0,1W
3602	4822 051 20101	100R00	5%	0,1W

ELECTRICAL PARTSLIST - MONO2 BOARD**RESISTORS**

3603	4822 117 10837	100K	1%	0,1W
3604	4822 117 10837	100K	1%	0,1W
3605	4822 117 11383	12K	1%	0,1W
3606	4822 117 11383	12K	1%	0,1W
3607	4822 051 20333	33K00	5%	0,1W
3608	4822 051 20333	33K00	5%	0,1W
3609	4822 051 20121	120R00	5%	0,1W
3610	4822 051 20121	120R00	5%	0,1W
3611	4822 117 10834	47K	1%	0,1W
3612	4822 117 10834	47K	1%	0,1W
3618	4822 117 10834	47K	1%	0,1W
3619	4822 117 10834	47K	1%	0,1W
3620	4822 116 52175	100E	5%	0,5W
3621	4822 051 20101	100R00	5%	0,1W
3622	4822 051 20121	120R00	5%	0,1W
3623	4822 051 20121	120R00	5%	0,1W
3627 ▲	4822 052 10109	10R00	5%	0,33W
3629 ▲	4822 052 10109	10R00	5%	0,33W
3630	4822 050 11002	1K00	1%	0,4W
3631	4822 050 11002	1K00	1%	0,4W
3632	4822 050 11002	1K00	1%	0,4W
3636	4822 051 20471	470R00	5%	0,1W
3637	4822 051 20471	470R00	5%	0,1W
3638	4822 051 20471	470R00	5%	0,1W
3639	4822 051 20471	470R00	5%	0,1W
3641	4822 117 10837	100K	1%	0,1W
3642	4822 117 10837	100K	1%	0,1W
3643	4822 117 10837	100K	1%	0,1W
3644	4822 117 10837	100K	1%	0,1W
3645	4822 117 11148	56K	1%	0,1W
3646	4822 117 11148	56K	1%	0,1W
3649	4822 117 10837	100K	1%	0,1W
3650	4822 117 10837	100K	1%	0,1W
3651	4822 117 11148	56K	1%	0,1W
3652	4822 117 11148	56K	1%	0,1W
3655	4822 117 10837	100K	1%	0,1W
3656	4822 117 10837	100K	1%	0,1W
3657	4822 117 11148	56K	1%	0,1W
3658	4822 117 11148	56K	1%	0,1W
3659	4822 117 12955	2K7 1%	0,1W	0805
3660	4822 117 12955	2K7 1%	0,1W	0805
3661	4822 051 20562	5K6 5%	0,1W	0805
3662	4822 051 20562	5K6 5%	0,1W	0805
3663	4822 117 12955	2K7 1%	0,1W	0805
3664	4822 117 12955	2K7 1%	0,1W	0805
3665	4822 051 20562	5K6 5%	0,1W	0805
3666	4822 051 20562	5K6 5%	0,1W	0805
3667	4822 117 12955	2K7 1%	0,1W	0805
3668	4822 117 12955	2K7 1%	0,1W	0805
3669	4822 051 20562	5K6 5%	0,1W	0805
3670	4822 051 20562	5K6 5%	0,1W	0805
3671	4822 117 10834	47K	1%	0,1W
3672	4822 117 10834	47K	1%	0,1W
3673	4822 117 11449	2K2	1%	0,1W
3674	4822 117 11449	2K2	1%	0,1W
3675	4822 051 20101	100R00	5%	0,1W
3676	4822 051 20101	100R00	5%	0,1W

RESISTORS

3677	4822 117 10834	47K	1%	0,1W
3678	4822 117 10834	47K	1%	0,1W
3679	4822 117 11449	2K2	1%	0,1W
3680	4822 117 11449	2K2	1%	0,1W
3681	4822 051 20101	100R00	5%	0,1W
3682	4822 051 20101	100R00	5%	0,1W
3683	4822 117 10834	47K	1%	0,1W
3684	4822 117 10834	47K	1%	0,1W
3685	4822 117 11449	2K2	1%	0,1W
3686	4822 117 11449	2K2	1%	0,1W
3687	4822 051 20101	100R00	5%	0,1W
3688	4822 051 20101	100R00	5%	0,1W
3689	4822 117 11449	2K2	1%	0,1W
3690	4822 117 11449	2K2	1%	0,1W
3691	4822 116 52256	2K2	5%	0,5W
3692	4822 117 11449	2K2	1%	0,1W
3693	4822 117 11449	2K2	1%	0,1W
3694	4822 116 52256	2K2	5%	0,5W
3695	4822 117 13579	220K	1%	0,1W
3696	4822 117 10833	10K	1%	0,1W
3697	4822 116 52257	22K	5%	0,5W
3698	4822 117 13579	220K	1%	0,1W
3699	4822 117 10833	10K	1%	0,1W
3700	4822 051 20223	22K00	5%	0,1W
3801	4822 117 12521	68R	1%	0,1W
3802	4822 117 12521	68R	1%	0,1W
3803	4822 117 12521	68R	1%	0,1W
3804	4822 117 12521	68R	1%	0,1W
3805	4822 051 10102	1K00	2%	0,25W
3806	4822 051 10102	1K00	2%	0,25W
3809	4822 051 20109	10R00	5%	0,1W
3810	4822 117 11449	2K2	1%	0,1W
3811	4822 051 20109	10R00	5%	0,1W
3812	4822 051 20471	470R00	5%	0,1W
3813	4822 051 20121	120R00	5%	0,1W
3814	4822 051 20109	10R00	5%	0,1W
3815	4822 117 12521	68R	1%	0,1W
3816	4822 117 12521	68R	1%	0,1W
3817	4822 117 11504	270R	1%	0,1W
3818	4822 117 11503	220R	1%	0,1W
3819	4822 051 20109	10R00	5%	0,1W
3820	4822 053 10101	100R00	5%	1W
3821	4822 053 10101	100R00	5%	1W
3831	4822 051 20101	100R00	5%	0,1W
3832	4822 051 20479	47R00	5%	0,1W
3834	4822 051 20101	100R00	5%	0,1W
3851	4822 051 20332	3K30	5%	0,1W
3852	4822 051 20223	22K00	5%	0,1W
3853	4822 117 11148	56K	1%	0,1W
3854	4822 051 20472	4K70	5%	0,1W
3855	4822 116 83876	270R	5%	0,5W
3856	4822 117 11504	270R	1%	0,1W
3857	4822 117 10837	100K	1%	0,1W
3858	4822 117 10837	100K	1%	0,1W
3859	4822 117 10833	10K	1%	0,1W
3860	4822 117 10833	10K	1%	0,1W
3871	4822 051 20332	3K30	5%	0,1W
3872	4822 051 20332	3K30	5%	0,1W

ELECTRICAL PARTSLIST - MONO2 BOARD**RESISTORS**

3873	4822 051 10102	1K00	2%	0,25W
3874	4822 051 10102	1K00	2%	0,25W
3875	4822 051 20332	3K30	5%	0,1W
3877	4822 051 10102	1K00	2%	0,25W
3878	4822 051 10102	1K00	2%	0,25W
3879	4822 051 20332	3K30	5%	0,1W
3880	4822 051 20332	3K30	5%	0,1W
3881	4822 051 10102	1K00	2%	0,25W
3882	4822 051 10102	1K00	2%	0,25W
3883	4822 117 11383	12K	1%	0,1W
3884	4822 117 11383	12K	1%	0,1W
3885	4822 117 11383	12K	1%	0,1W
3886	4822 117 11383	12K	1%	0,1W
3887	4822 117 11383	12K	1%	0,1W
3888	4822 117 11383	12K	1%	0,1W
3889	4822 117 11449	2K2	1%	0,1W
3890	4822 117 11449	2K2	1%	0,1W
3901 ▲	4822 052 10479	47R00	5%	0,33W
3902	4822 117 11148	56K	1%	0,1W
3903	4822 117 10834	47K	1%	0,1W
3904	4822 116 83884	47K	5%	0,5W
3905	4822 050 24708	4R70	1%	0,6W
3906	4822 117 11148	56K	1%	0,1W
3907	4822 116 83961	6K8	5%	
3908	4822 051 20182	1K80	5%	0,1W
3909	4822 116 83961	6K8	5%	
3910	4822 050 24708	4R70	1%	0,6W
3911	4822 117 11148	56K	1%	0,1W
3913	4822 051 20182	1K80	5%	0,1W
3914	4822 117 11148	56K	1%	0,1W
3915 ▲	4822 052 10479	47R00	5%	0,33W
3916 ▲	4822 053 10478	4R70	5%	1W
3917	4822 051 20333	33K00	5%	0,1W
3918	4822 117 11503	220R	1%	0,1W
3919 ▲	4822 053 10478	4R70	5%	1W
3920	4822 117 10837	100K	1%	0,1W
3921	4822 051 20182	1K80	5%	0,1W
3922	4822 051 20182	1K80	5%	0,1W
3925	4822 117 10833	10K	1%	0,1W
3926 ▲	4822 117 11342	0R33	5%	2W
3927 ▲	4822 117 11342	0R33	5%	2W
3928	4822 117 11139	1K5	1%	0,1W
3929	4822 117 11139	1K5	1%	0,1W
3930 ▲	4822 117 11342	0R33	5%	2W
3931 ▲	4822 117 11342	0R33	5%	2W
3932 ▲	4822 117 11342	0R33	5%	2W
3933 ▲	4822 117 11342	0R33	5%	2W
3934	4822 051 10102	1K00	2%	0,25W
3935	4822 051 10102	1K00	2%	0,25W
3936	4822 117 10837	100K	1%	0,1W
3937	4822 117 10833	10K	1%	0,1W
3938	4822 117 11449	2K2	1%	0,1W
3939	4822 117 11449	2K2	1%	0,1W
3940	4822 117 11503	220R	1%	0,1W
3941	4822 117 11503	220R	1%	0,1W
3943	4822 051 20223	22K00	5%	0,1W
3944	4822 117 11503	220R	1%	0,1W
3945	4822 117 11503	220R	1%	0,1W

RESISTORS

3946	4822 051 20471	470R00	5%	0,1W
3947	4822 051 20471	470R00	5%	0,1W
3948	4822 117 11503	220R	1%	0,1W
3949	4822 117 11503	220R	1%	0,1W
3950	4822 051 20182	1K80	5%	0,1W
3951	4822 051 20182	1K80	5%	0,1W
3952	4822 051 20101	100R00	5%	0,1W
3953	4822 051 20101	100R00	5%	0,1W
3954	4822 051 20101	100R00	5%	0,1W
3955	4822 051 20101	100R00	5%	0,1W
4251	4822 051 20008	0R00 JUMP.		(0805)
4252	4822 051 20008	0R00 JUMP.		(0805)
4253	4822 051 20008	0R00 JUMP.		(0805)
4256	4822 051 20008	0R00 JUMP.		(0805)
4258	4822 051 20008	0R00 JUMP.		(0805)
4259	4822 051 20008	0R00 JUMP.		(0805)
4260	4822 051 20008	0R00 JUMP.		(0805)
4283	4822 051 20008	0R00 JUMP.		(0805)
4284	4822 051 20008	0R00 JUMP.		(0805)
4285	4822 051 20008	0R00 JUMP.		(0805)
4287	4822 051 20008	0R00 JUMP.		(0805)
4320	4822 051 20008	0R00 JUMP.		(0805)
4505	4822 051 20008	0R00 JUMP.		(0805)
4506	4822 051 20008	0R00 JUMP.		(0805)
4512	4822 051 20008	0R00 JUMP.		(0805)
4513	4822 051 20008	0R00 JUMP.		(0805)
4514	4822 051 20008	0R00 JUMP.		(0805)
4515	4822 051 20008	0R00 JUMP.		(0805)
4516	4822 051 20008	0R00 JUMP.		(0805)
4517	4822 051 20008	0R00 JUMP.		(0805)
4518	4822 051 20008	0R00 JUMP.		(0805)
4519	4822 051 20008	0R00 JUMP.		(0805)
4520	4822 051 20008	0R00 JUMP.		(0805)
4521	4822 051 20008	0R00 JUMP.		(0805)
4522	4822 051 20008	0R00 JUMP.		(0805)
4523	4822 051 20008	0R00 JUMP.		(0805)
4524	4822 051 20008	0R00 JUMP.		(0805)
4526	4822 051 20008	0R00 JUMP.		(0805)
4528	4822 051 20008	0R00 JUMP.		(0805)
4529	4822 051 20008	0R00 JUMP.		(0805)
4530	4822 051 20008	0R00 JUMP.		(0805)
4531	4822 051 20008	0R00 JUMP.		(0805)
4532	4822 051 20008	0R00 JUMP.		(0805)
4533	4822 051 20008	0R00 JUMP.		(0805)
4537	4822 051 20008	0R00 JUMP.		(0805)
4538	4822 051 20008	0R00 JUMP.		(0805)
4539	4822 051 20008	0R00 JUMP.		(0805)
4540	4822 051 20008	0R00 JUMP.		(0805)
4541	4822 051 20008	0R00 JUMP.		(0805)
4542	4822 051 20008	0R00 JUMP.		(0805)
4543	4822 051 20008	0R00 JUMP.		(0805)
4544	4822 051 20008	0R00 JUMP.		(0805)
4545	4822 051 20008	0R00 JUMP.		(0805)
4548	4822 051 20008	0R00 JUMP.		(0805)
4550	4822 051 20008	0R00 JUMP.		(0805)
4551	4822 051 20008	0R00 JUMP.		(0805)
4552	4822 051 20008	0R00 JUMP.		(0805)

ELECTRICAL PARTSLIST - MONO2 BOARD**RESISTORS**

4553	4822 051 20008	OR00 JUMP. (0805)
4555	4822 051 20008	OR00 JUMP. (0805)
4556	4822 051 20008	OR00 JUMP. (0805)
4557	4822 051 20008	OR00 JUMP. (0805)
4558	4822 051 20008	OR00 JUMP. (0805)

4559	4822 051 20008	OR00 JUMP. (0805)
4560	4822 051 20008	OR00 JUMP. (0805)
4563	4822 051 20008	OR00 JUMP. (0805)
4564	4822 051 20008	OR00 JUMP. (0805)
4641	4822 051 20008	OR00 JUMP. (0805)

4651	4822 051 20008	OR00 JUMP. (0805)
4652	4822 051 20008	OR00 JUMP. (0805)
4832	4822 051 20008	OR00 JUMP. (0805)
4901	4822 051 20008	OR00 JUMP. (0805)
4902	4822 051 20008	OR00 JUMP. (0805)

4903	4822 051 20008	OR00 JUMP. (0805)
4904	4822 051 20008	OR00 JUMP. (0805)
4905	4822 051 20008	OR00 JUMP. (0805)
4913	4822 051 20008	OR00 JUMP. (0805)
4914	4822 051 20008	OR00 JUMP. (0805)

4917	4822 051 20008	OR00 JUMP. (0805)
4918	4822 051 20008	OR00 JUMP. (0805)
4920	4822 051 20008	OR00 JUMP. (0805)
4921	4822 051 20008	OR00 JUMP. (0805)
4922	4822 051 20008	OR00 JUMP. (0805)

4923	4822 051 20008	OR00 JUMP. (0805)
4924	4822 051 20008	OR00 JUMP. (0805)
4925	4822 051 20008	OR00 JUMP. (0805)

FILTERS

5301	4822 157 70599	COIL
5303	4822 157 70599	COIL
5305	4822 157 70599	COIL
5901	4822 157 62255	COIL
5902	4822 157 62255	COIL

DIODES

6251	4822 130 82078	D5SBA20
6253	4822 130 82078	D5SBA20
6257	4822 130 31878	1N4003G
6258	4822 130 31878	1N4003G
6259	4822 130 31878	1N4003G

6260	4822 209 33575	L7812CP
6261	4822 130 31878	1N4003G
6262	4822 130 31878	1N4003G
6263	4822 130 31878	1N4003G
6264	3198 010 53980	BZX79-B3V9

6266	4822 130 34281	BZX79-B15
6267	4822 209 31841	L7805CP
6268	4822 130 31878	1N4003G
6270	4822 130 34278	BZX79-B6V8
6271	4822 130 30621	1N4148

6276	4822 130 34173	BZX79-B5V6
6279	4822 130 30621	1N4148
6280	4822 130 34281	BZX79-B15
6281	4822 130 34281	BZX79-B15
6289	4822 130 83757	BAS216

6290	4822 130 83757	BAS216
6301	4822 130 30862	BZX79-B9V1

PCS 102 478

DIODES

6302	4822 130 30862	BZX79-B9V1
6303	4822 130 30621	1N4148
6304	4822 130 11411	BZX284-C3V3
6305	4822 130 83757	BAS216
6501	4822 130 30621	1N4148

6601	4822 130 30621	1N4148
6602	4822 130 30621	1N4148
6641	4822 130 83757	BAS216
6642	4822 130 30621	1N4148
6643	4822 130 30621	1N4148

6644	4822 130 30621	1N4148
6645	4822 130 30621	1N4148
6646	4822 130 83757	BAS216
6647	4822 130 83757	BAS216
6648	4822 130 83757	BAS216

6649	4822 130 31878	1N4003G
6650	4822 130 61219	BZX79-B10
6801	4822 130 34278	BZX79-B6V8
6802	4822 130 34278	BZX79-B6V8
6803	4822 130 34278	BZX79-B6V8

6804	4822 130 34278	BZX79-B6V8
6805	4822 130 34278	BZX79-B6V8
6806	4822 130 34278	BZX79-B6V8
6807	4822 130 34278	BZX79-B6V8
6808	4822 130 34278	BZX79-B6V8

6809	4822 130 30621	1N4148
6810	4822 130 34233	BZX79-B5V1
6811	4822 130 34382	BZX79-B8V2
6831	4822 130 30621	1N4148
6832	4822 130 30621	1N4148

6901	4822 130 83757	BAS216
6903	4822 130 11047	BZX284-C9V1
6904	4822 130 83757	BAS216
6905	4822 130 11047	BZX284-C9V1

TRANSISTORS

7251	9322 139 22687	BD242BFP
7252	4822 130 60511	BC847B
7253	4822 130 60511	BC847B
7254	4822 130 60511	BC847B
7255	4822 130 60373	BC856B

7256	4822 130 60511	BC847B
7257	4822 130 41246	BC327-25
7258	4822 130 41246	BC327-25
7259	4822 130 60511	BC847B
7260	5322 130 60159	BC846B

7261	4822 130 60373	BC856B
7302	4822 209 17507	STK496-630
7304	5322 130 60159	BC846B
7305	5322 130 60159	BC846B
7306	5322 130 60159	BC846B

7307	5322 130 60159	BC846B
7309	4822 130 60373	BC856B
7310	4822 130 60511	BC847B
7501	4822 209 72748	LC7821
7503	4822 209 83357	NJM4560M

7601	4822 209 31378	NJM4556MB
7621	4822 130 42615	BC817-40
7622	4822 130 42615	BC817-40

ELECTRICAL PARTSLIST - MONO2 BOARD

TRANSISTORS

7641	4822 209 17386	TDA7437T
7642	4822 209 17386	TDA7437T
7643	4822 209 17386	TDA7437T
7644	4822 130 40855	BC337
7651	4822 130 42615	BC817-40
7652	4822 130 42615	BC817-40
7653	4822 130 42615	BC817-40
7654	4822 130 42615	BC817-40
7655	4822 130 42615	BC817-40
7656	4822 130 42615	BC817-40
7657	4822 130 60373	BC856B
7658	4822 130 60373	BC856B
7660	4822 209 83357	NJM4560M
7661	4822 130 42615	BC817-40
7662	4822 130 42615	BC817-40
7801	4822 130 60511	BC847B
7802	4822 130 44568	BC557B
7803	4822 209 16886	STV6401
7902	5322 130 60159	BC846B
7903	5322 130 60159	BC846B
7904	5322 130 60159	BC846B
7905	4822 209 17384	STK411-230E
7908	4822 130 60373	BC856B
7909	4822 130 60511	BC847B
7910	9322 139 22687	BD242BFP